AUSTRALIAN MINICOMPUTER - SBC - TERMINAL MARKET OPPORTUNITIES

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Prepared For:

PHILIPS INDUSTRIES HOLDINGS LIMITED

JANUARY 1979

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I INTRODUCTION

I INTRODUCTION

A. PURPOSE

- The purpose of this study was to analyze the Australian minicomputer/SBC and terminal markets and to determine the best entry for Philips into this marketplace through an expansion of their Data Systems Division activities. An analysis of both the realized and potential market, in addition to a discussion of the competitive environment is presented. This is complemented with an in-depth analysis of current and planned user requirements for EDP (Electronic Data Processing).

- The composite of these analyses will assist Philips executive personnel in determining their corporate strategy for this segment of the Australian EDP marketplace.

B. RESEARCH AND METHODOLOGY

- The research for this program was segmented into the following modules:

  - Analysis of the current and planned user requirements; user perceptions of the vendor community and attitudes and strategies for acquiring EDP capabilities. These information elements were collected through a series of 115 telephone and on-site interviews conducted during October and November 1978. Appendix A provides a tabulation of the users interviewed.

  - Analysis of the vendors' minicomputer/SBC and terminal markets; organization and sales strategy of vendors marketing staffs; attitudes and strategies toward the marketplace and their anticipated positions in the market during the next five years. This information was obtained through a series of 30 telephone and on-site interviews conducted in October and November of 1978 and existing information extracted from INPUT's vendor data bases. Appendix B provides a tabulation of the vendor sample.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. MARKET CHARACTERISTICS

- The Australian minicomputer/SBC market is intensively competitive.

- There are over 40 companies currently in Australia competing for an annual market which INPUT estimates in 1978 to be A$107 million. This market is expected to grow to A$216 million by 1983, as shown in Exhibit II-1.

- By 1983 it is expected that the number of companies competing for this market will be reduced because of the intense competion and their inability to gain sufficient profit margins to remain in business.

    - IBM and DEC will continue to be the two major suppliers of these products with IBM significantly increasing their share of the market from a current level of 9% to 20% of the market.

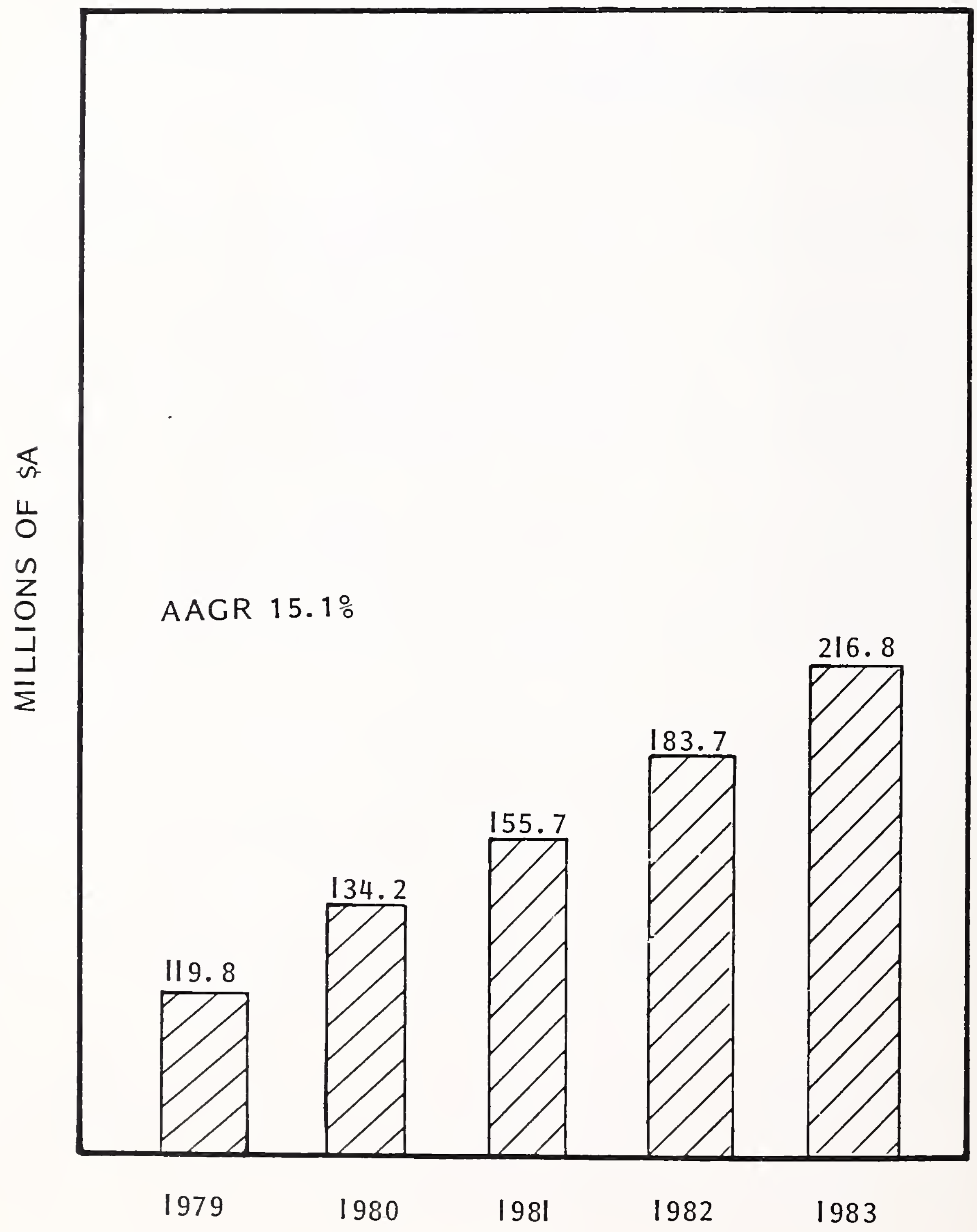
    - This will cause some erosion in DEC's market share and could prove catastrophic for other current vendors.

- The introduction of still another minicomputer/SBC product into this type of market must be carefully considered in light of these findings and with the expectation that a short-term profitable position cannot be achieved.

EXHIBIT II-1

AUSTRALIAN MINICOMPUTER/SBC MARKET FORECAST

1979 - 1983



- However, over the long term it is expected that a well supported, highly differentiated minicomputer/SBC product could produce annual revenues in Australia of approximately A$5 million by 1983.

B. PRODUCT SELECTION AND DIFFERENTIATION

- The selection of a line of minicomputer/SBC products to be introduced into this marketplace is the most difficult decision to be made.

- With the existence of every major world supplier of computing products already in the Australian marketplace, it is very difficult not be be viewed as "just another face in the crowd."

- This syndrome is the result of the large number of products available in the marketplace, but also by the very nature of the product being sold.

  - The basic reliability of the assembled hardware components into various product lines and systems is operationally equal.

  - Simply stated, all hardware works today.

- The differentiating characteristics of these products are found outside the hardware and are segmented into two complementary areas.

  - A demonstrated ability by the vendor to provide both hardware and software maintenance and support.

  - Availability of applicable and easily used software products.

- In Australia and the rest of the world market, the clear distinction between products and services is becoming more blurred and any strategic planning must recognize this basic market characteristic.

C. MARKET CONCENTRATION

- To achieve turnover of $A5 million by 1983, it will be necessary to concentrate geographically within Sydney and Melbourne.

- Although potential sales may be possible outside these geographic areas, the cost associated with selling and post sales support do not warrant initial consideration.

- Within these two geographic areas there are two potential markets that should be targeted.

  - Existing Philips customers that are candidates for upgrade of currently installed equipment.

  - Small business establishments with more than 50 employees and annual sales of at least A$500,000.

- The upper bound of the market should be limited only by careful avoidance of sales situations that will result in direct competition with IBM and DEC.

- Within these market areas the major applications to be supplied should be:

  - General business packages including the full range of accounting applications.

    - Accounts payable.

    - Accounts receivable.

    - General ledger.

    - Payroll.

  - Inventory control and personnel management applications are of secondary importance.

  - Word processing should be considered as an augmentation to the basic product line.

- Industrial and process control applications should be avoided because of DEC's strong position in this area.

D. SELLING REQUIREMENTS

- It should be expected that each potential selling situation will be highly competitive with potential buyers comparing a number of products before making their final selection.

- This type of competition will result in:

    - Selling cycles of at least six months with a requirement for major sales presentations, informal customer education, and intense price negotiation.

    - Pre-sales support will require articulate sales personnel who can respond rapidly to a wide range of inquiries from the potential buyer.

- With the concentration of sales activities on existing Philips customer base and small business establishments, the salesman interface will be with two distinct customer types:

    - The Managing Director or Chief Financial Officer who will have little knowledge about electronic data processing and must be convinced that the product being sold will improve his operations in terms of cost and profitability. This individual may insist that these selling points be quantitatively proved which will necessitate pre-sales qualification and analysis.

    - The EDP manager who will be technically knowledgeable and will have to be supplied with well-written, detailed documentation about capabilities of the product and support services. This will include hardware maintenance, software support and training.

- On large accounts be prepared to deal with outside consultants that have been retained to help in product selection. They will be partially motivated by extending the sales process to increase their participation and to establish a relationship with the buyer for post-sales support.

E. SALES FORCE SELECTION AND TRAINING

- The acquisition, training and retention of a qualified sales force will require significant management attention.

- These types of personnel are in short supply and there is extreme competition among vendors for their services.

  - Existing vendors are experiencing unacceptable levels of salesmen retention with personnel turnover rates as high as 35% per annum.

  - The migration of salesmen through various vendor organizations have made them aware of all salary levels and compensation packages.

- In order to attract qualifed personnel to sell in this market it will be necessary to:

  - Sell the prospective salesman on the product offering. If he believes commission levels cannot be achieved with the product to be sold, recruiting will be difficult.

  - Offer a significant compensation package. If sales personnel are to be hired from the competition, plan on a minimum of 20% salary increase over current levels.

- This type of sales force is the most expensive to recruit and retain.

- Professional sales training should be limited to product line familiarization both through formal classes and "hands on" experience.

- Salesmen who require additional training in "selling techniques" should not be considered for the cadre sales force.

F. CUSTOMER SUPPORT AND TRAINING

- As indicated in Section B, product differentiation will be achieved in the customer suport area.

- If Philips maintenance experience with existing electronic accounting equipment has been good, this can be thematically exploited until a base of the new product line has been established.

- Initial customers of the new product line should be treated well. This may result in reduced initial profit levels, but will be extremely beneficial in establishing a long-term position in the market. This should include:

  - Initial orientation and training for system operations.

  - Responsive maintenance support.

  - Software support to include on-call inquiry by Philips technical staff.

  - Philips executive calls of Managing Director of the company.

G. SUMMARY

- The market exists for a $A5 million market share by Australia for a well supported highly differentiated minicomputer/SBC product line.

- The attainment of this goal will require:

  - General management understanding and patience in a slow starting market situation.

  - Highly motivated professional sales force concentrated in Sydney and Melbourne.

  - Responsive support staff for both hardware and software to insure the success of initial installations.

III THE AUSTRALIAN MARKETPLACE

III THE AUSTRALIAN MARKETPLACE

A. INTRODUCTION

- The Australian marketplace contains certain essential demographic, economic, and competitive characteristics which differentiate it from other world marketplaces.

- Those characteristics which create this differentiation are discussed in terms of their impact on formulating strategic plans for Philips in the minicomputer/SBC/terminal market.

B. DEMOGRAPHIC CHARACTERISTICS

- Although Australia occupys a land mass equivalent in size to the United States, its population is only about 14 million.

- This population is concentrated in two major modern metropolitan areas that are the dual centers of most commercial activities.

- Sydney and Melbourne contain 41% of the population with Sydney having 22% of the population.

  - Most major industrial, financial, and business activities are headquartered in these cities.
  - The other major cities in Australia provide the following contributions to the Australian population:

    - Brisbane - 7.0%

    - Adelaide - 6.5%

    - Perth - 5.8%

    - Newcastle - 2.6%

    - Canberra - 1.0%

  - Other important characteristics are the long physical distances that separate these major cities creating increased travel time and communication costs.

  - Regional characteristics make each of these cities a somewhat different marketplace in terms of selling requirements.

- Most important about these distinct cities is that a sales "presence" is required, i.e., if one wants to sell in the Melbourne marketplace, it should be accomplished from a local or regional office and could not be effectively accomplished from another city.

C. SOCIOECONOMIC INHIBITORS TO GROWTH

- During the past six years Australia has been going through a significant inflationary cycle and is currently in a mode of economic recovery, but is still faced with unacceptably high levels of unemployment which has created a labor surplus.

- While it is not within the scope of this study to make general economic forecasts about the characteristics of the Australian economy, it can best be considered as a neutral or possibly a negative factor in the general business climate.

1. THE "PEOPLE DISPLACEMENT" FACTOR

- As each industrial society moves into serious commitments to EDP, a significant portion of their business and government base, there is social concern exhibited by the government officials, politicians, labor leaders, and academicians.

- This is apparent in Australia today particularly with the strong voice that labor exercises in the economic life of the country. The most notable quote that summarizes this viewpoint appears in the 1978 issue of Rydges EDP Manual:

  - "It must be faced that in a stagnant economy in a time of high unemployment, the computer is an anti-social device and the day may come where payroll tax (which is a penalty on employing people) will be replaced with a computer tax - to pay unemployment benefits for the people displaced."

- While it is impossible to quantify this viewpoint in terms of its impact on future growth of computerization within Australia, corporate planners must keep it in the forefront in formulating strategic and tactical plans for the marketplace.

2. FEDERAL GOVERNMENT INCENTIVES

- The Federal Government inacted certain legislation in order to increase the capital investment of Australian commercial establishments.

- The crux of this legislation was to provide tax incentives for the purchase of certain types of equipment which included electronic data processing hardware.

- These tax incentives which were as high as 40% in 1977-78 have created a climate that encouraged the forward purchasing/ordering of equipment by Australian business.

- Although this incentivized the business community, INPUT believes that this will be an inhibiting factor in the expected growth of electronic data processing hardware sales over at least the next three years.

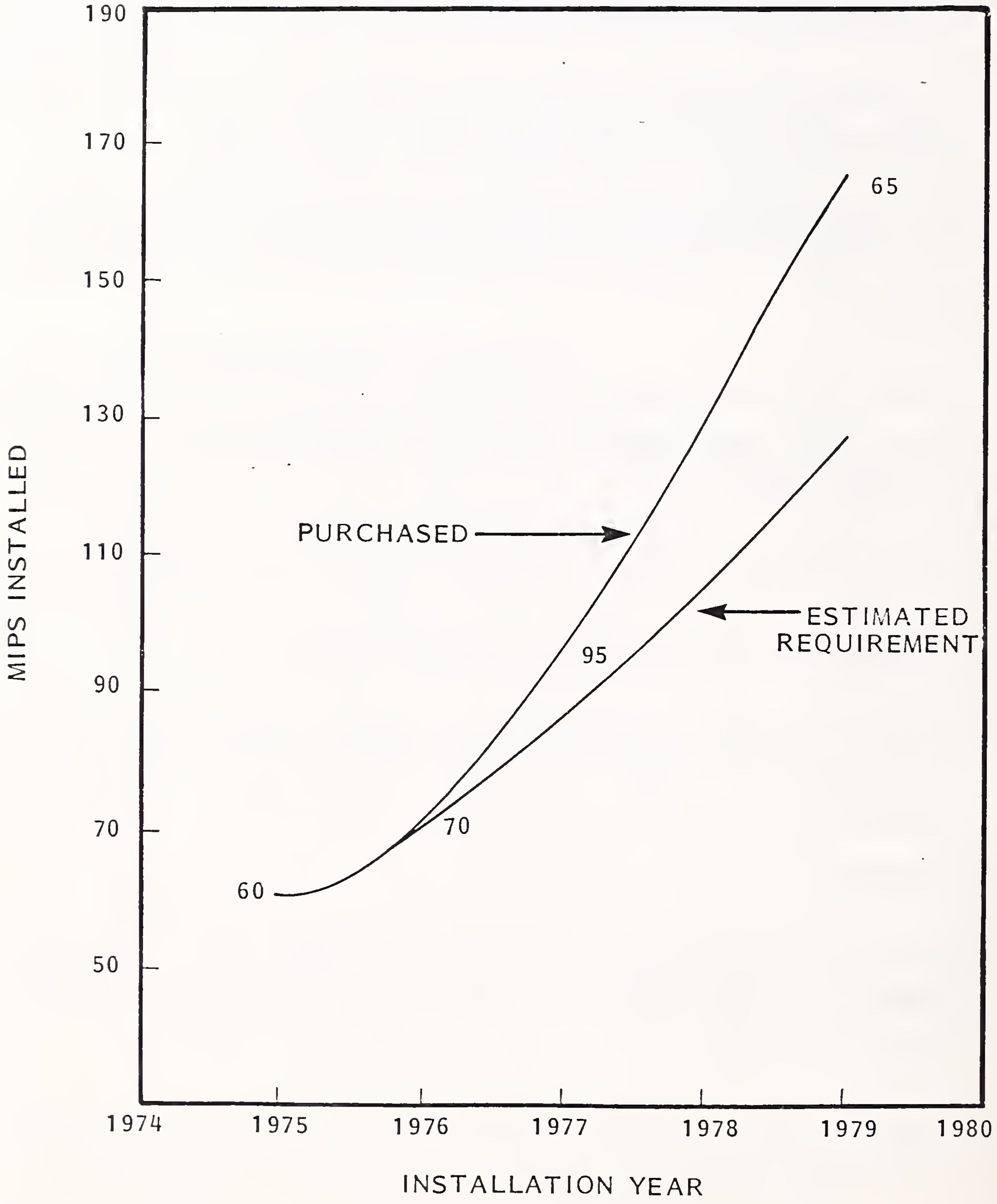
- Exhibit III-1 presents an analysis of the significant purchases that were made in Australia of the IBM 303X series to not only increase computational capabilities provided by the new technology, but to take advantage of the tax incentives.

- As can be seen in a two year period, the resident MIPS (million instructions per second) in Australia of the major supplier of mainframes has increased by two orders of magnitude.

- The importance of this data is that this installed base of hardware capability will probably surpass the requirement thus creating an excess capacity.

EXHIBIT III-1

REQUIRED VERSUS PURCHASED
303X CAPACITIES



- This may create an environment in which larger companies with excess EDP capability will attempt to "broker" it to other firms in order to recover some of their costs.

D. COMPETITIVE ISSUES

I. OVERCOMPETED MARKETPLACE

- The Australian minicomputer/SBC/terminal marketplace does not lack for competition.

- INPUT estimates that there are approximately 40 firms in Australia vieing for a marketplace which is estimated in 1978 to be $A107 million.

- Exhibit III-2 provides an estimate of the division of the marketshare for the various competitors in this marketplace.

- These firms have annual turnover as low as under A$.5 million to A$20 million with Digital Equipment Corporation (DEC) capturing the biggest marketshare with only 11.5% of the current market.

- While IBM is currently estimated to have a 5% share of this market, it is expected, particularly with their new product announcements and redirected worldwide strategy to this market, to equal or surpass DEC as the number one supplier of products to this marketplace in Australia within the next five years.

- INPUT expects that over the next five years some of the companies who are competing for this marketplace to withdraw because of inability to gain a significant enough marketshare to make it profitable for them to remain in business.

- This redistribution of the market among a smaller number of companies has a more important effect than just reducing the number of competitors.

EXHIBIT III-2

AUSTRALIAN MINICOMPUTER/SBC MARKET SHARE

VENDOR	MARKET SHARE	1978 TURNOVER (SALES) $A
DEC	19%	$20
HEWLETT-PACKARD	11	12
IBM (GSD)	9	10
DATA-GENERAL	9	10
BURROUGHS	8	8
SIGMA DATA	8	8
NCR	8	8
WANG	4	4.5
REALITY	3	5
QANTEL	3	3
INTERDATA	3	3.5
HONEYWELL	3	3
ICL	2	2
PRIME	2	2.5
UNIVAC	2	2
CDC	1	1
FOUR PHASE	1	1
OTHERS	4	4.5
TOTAL	100%	$107

- It will create a potential backlash among purchasers of EDP hardware who will find themselves faced with an unsupported product in terms of maintenance and software support.

- This expected backlash will create dissatisfied users and sufficient "horror stories" to inhibit other potential first time end users from introducing electronic data processing capabilities into their establishments.

2. PRODUCT CHARACTERISTICS

- The Australian marketplace represents a microcosm of product lines that are available on an international basis with strong representation from the U.S., European, and Japanese electronic industries.

- There are no true differentiators within the marketplace for these products from a hardware viewpoint.

- The basic reliability of the assemble hardware components into various system configurations is operationally equal.

- Simply stated, all hardware works.

- The differentiation characteristics of the products offered by vendors is found outside the hardware and is segmented into two complementary areas:

  - Demonstrated ability to provide both hardware and software maintenance.

  - Availability of application and easily used software programs.

- As a result, in Australia and the rest of the world market, the clear distinction between products and services is becoming more blurred and a company developing a corporate strategy must recognize this basic service characteristic of the market.

3. DISTRIBUTION CHANNELS FOR MINICOMPUTER/SBC/TERMINAL PRODUCTS

- Within Australia there are many distribution channels to the end users from the manufacturer. These paths can be quite complex because distribution channels market to each other as well as to the end user.

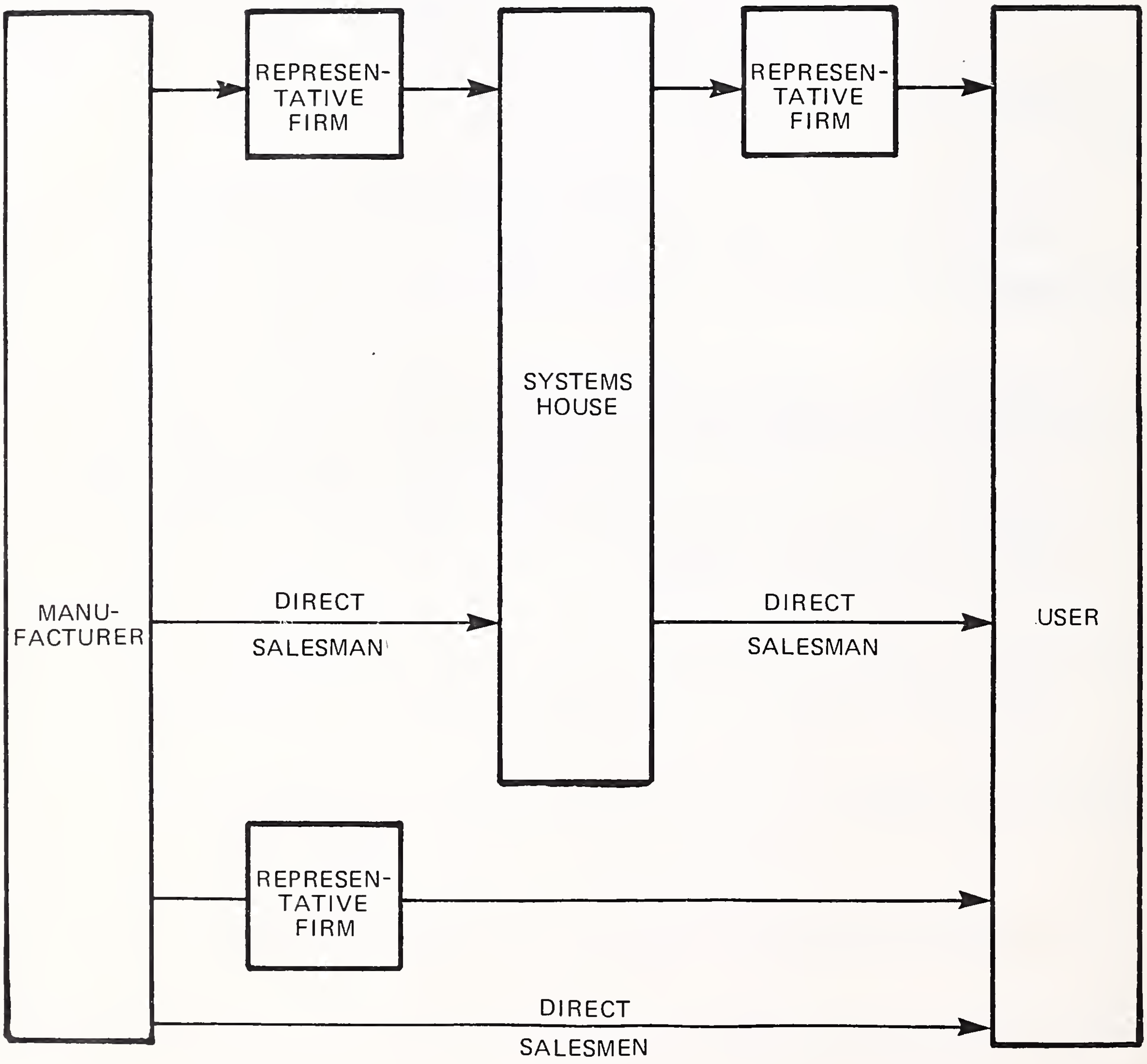
- The interrelation of distribution channels is shown in Exhibit III-3 which presents possible distribution channels within the Australian market. Note that a manufacturer sells directly to two different distribution channels as well as to the user. This is somewhat mitigated in Australia through licensing agreements.

- Distribution channels can compete with each other in marketing the same or modified equipment to user even though one channel is a customer of the other channel.

- These distribution channels become more complex in Australia because of the actual physical distance over which some of these products must travel. This is particularly important in terms of spare parts stocks and responsiveness of associated maintenance organizations with considerable overseas interfaces to parent organizations or suppliers.

EXHIBIT III-3

DISTRIBUTION CHANNELS OF MINICOMPUTER/ SBC/TERMINAL PRODUCTS



E. MARKET FORECAST FOR MINICOMPUTER/SBC PRODUCTS

- Market forecast data has been provided for the minicomputer/SBC products only. This is because INPUT believes that the size of the pure terminal market is not sufficient to be considered as a standalone market for Philips.

1. WORLD PERSPECTIVE ON MINICOMPUTER/SBC PRODUCTS IN AUSTRALIA

- Based on previous research, INPUT estimates that the total value of minicomputer/SBC shipped worldwide by U.S. manufacturers will grow from US$2.6 billion in 1977 to US$7.4 billion in 1981, a 30% average annual growth rate. (See Exhibit III-4.)

    - Shipments to the international market will increase from 32% in 1978 to 37% in 1982.

    - The total number of minicomputers shipped will increase from a base of 77,000 in 1977 to 188,000 in 1981 (Exhibit III-5).

- Exhibit III-6 provides a distribution of 1976 worldwide minicomputer market revenues.

- While DEC has about 38% of that market, the world market as indicated previously they are estimated to have only 19% of the Australian market.

- Of more significance is the expected increase of IBM's market share of this product area.

- Exhibit III-7 provides INPUT's estimate of the impact of IBM's increased concentration on this market and as indicated earlier in this chapter, it is expected they will provide the same type of impact on the Australian market.

EXHIBIT III-4

FORECASTED VALUE OF MINICOMPUTERS SHIPPED WORLDWIDE BY U.S. MANUFACTURERS

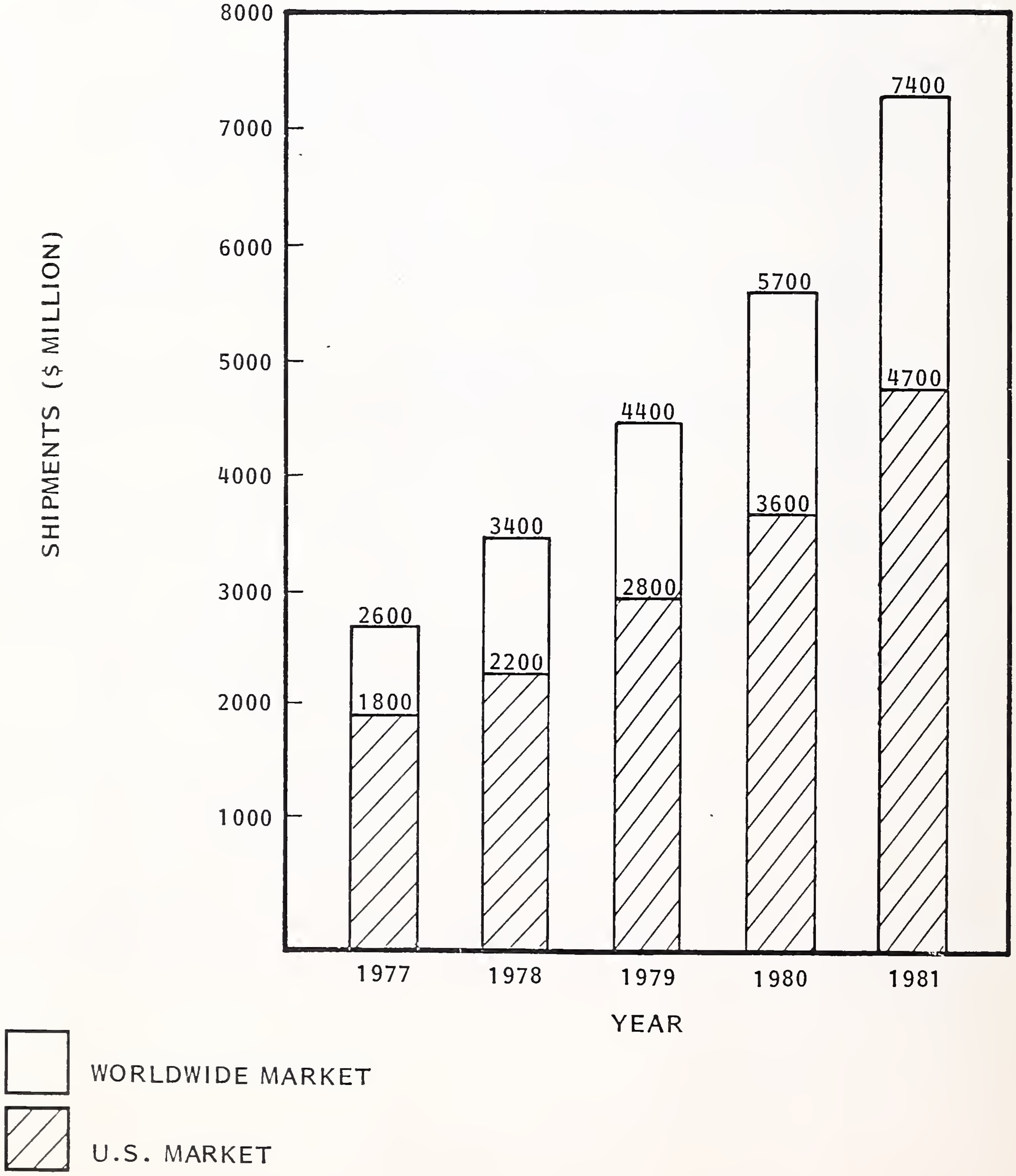


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EXHIBIT III-5

FORECASTED NUMBER OF MINICOMPUTERS TO BE SHIPPED WORLDWIDE BY U.S. MANUFACTURERS

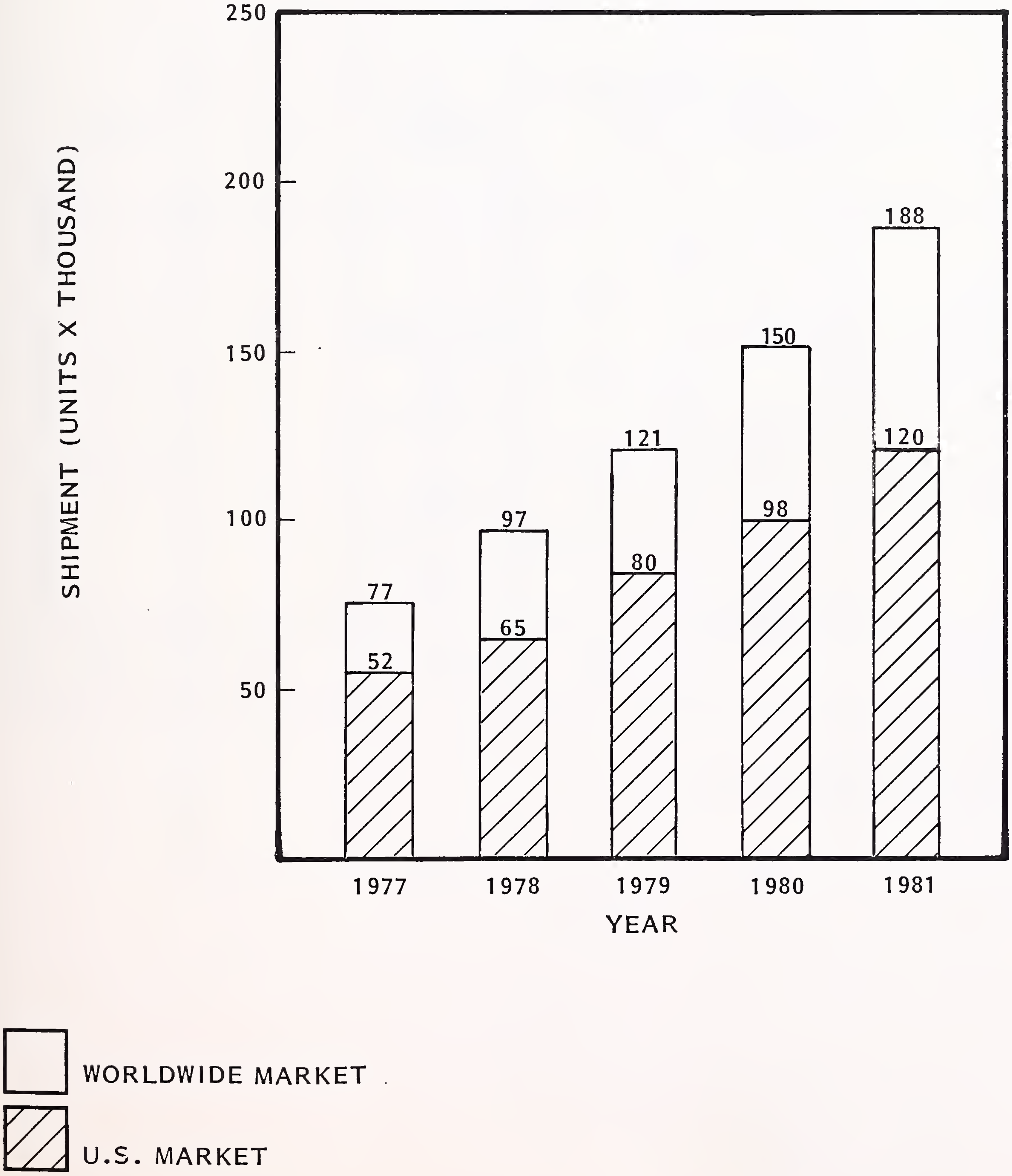


EXHIBIT III-6

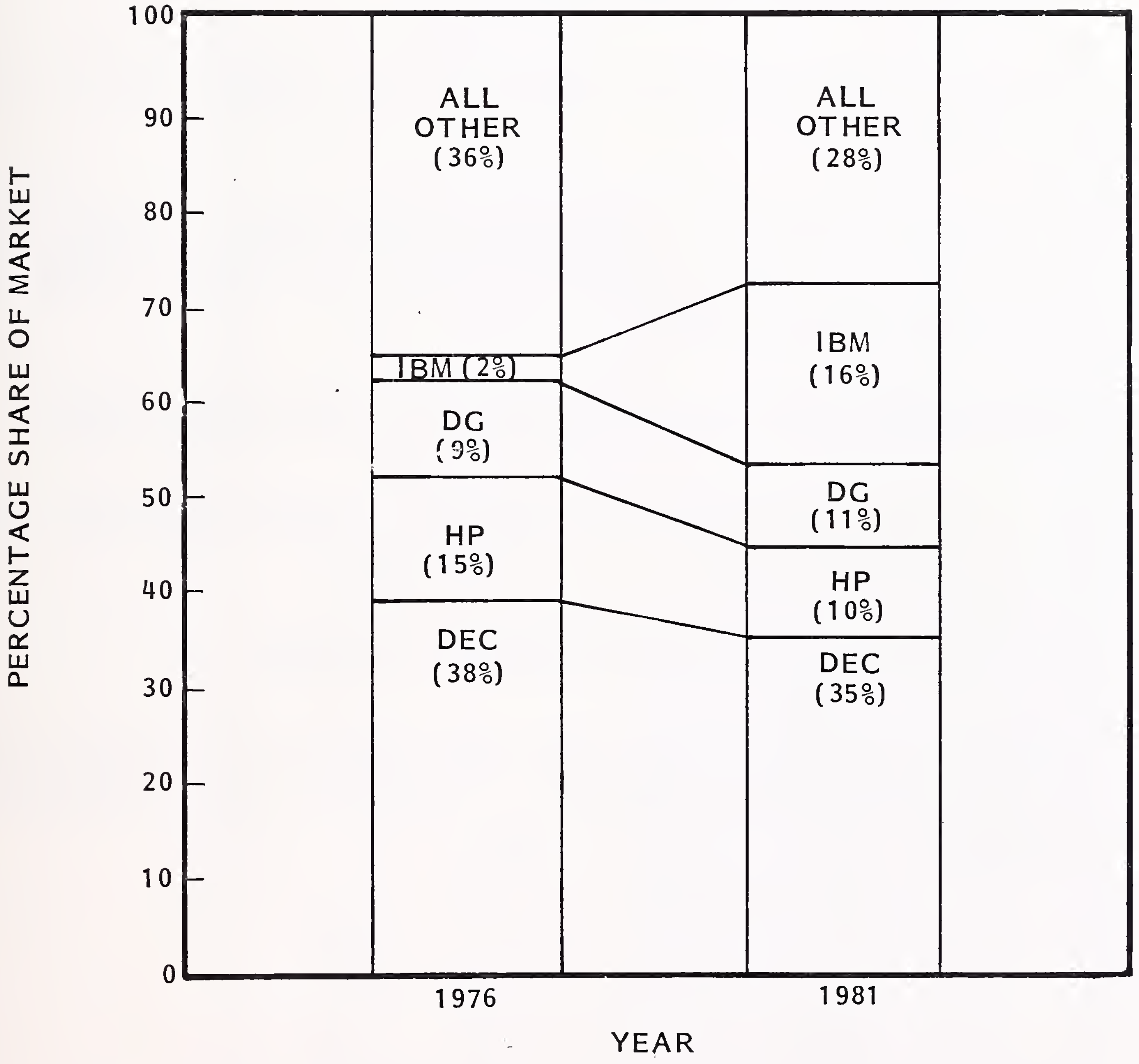
1976 WORLDWIDE MINICOMPUTER REVENUES OF AMERICAN MINICOMPUTER MANUFACTURERS

MANUFACTURER	PERCENT OF MARKET	TOTAL REVENUE	UNITS	VALUE/ UNIT
D.E.C.	38%	$ 738M	20.2K	$ 36.4K
HEWLETT-PACKARD	15	303	5.5	55.1
DATA GENERAL	9	180	6.3	28.6
IBM*	2	40	1.5	26.7
ALL OTHER	36	701	27.0	26.1
TOTAL	100%	$1,962M	60.5K	$ 32.4K

*SYSTEM 7 AND SERIES/1

EXHIBIT III-7

FORECASTED WORLDWIDE MINICOMPUTER MARKET SHARE OF "FIRST TIER" MANUFACTURERS FOR 1976 AND 1981 (PERCENTAGE)



2. AUSTRALIAN MINICOMPUTER/SBC FORECAST

- INPUT expects the Australian minicomputer/SBC market to grow at an annual rate of 15.1% during the five-year period from 1979 to 1983, as indicated in Exhibit III-8.

- The 1978 base of $A107 million will increase to $A119.8 million in 1979 and is expected to reach $A216.8 million by 1983.

    - Any severe recessionary trend will have a negative impact on this forecast.

    - Growth rates in the out years will be greater because of recovery from the current excess computational capability that should be absorbed by the economy by mid-1981.

- This forecast rate of growth is comparable to U.S. and European markets.

    - The U.S. market for similar products is expected to increase at an annual rate of 16%.

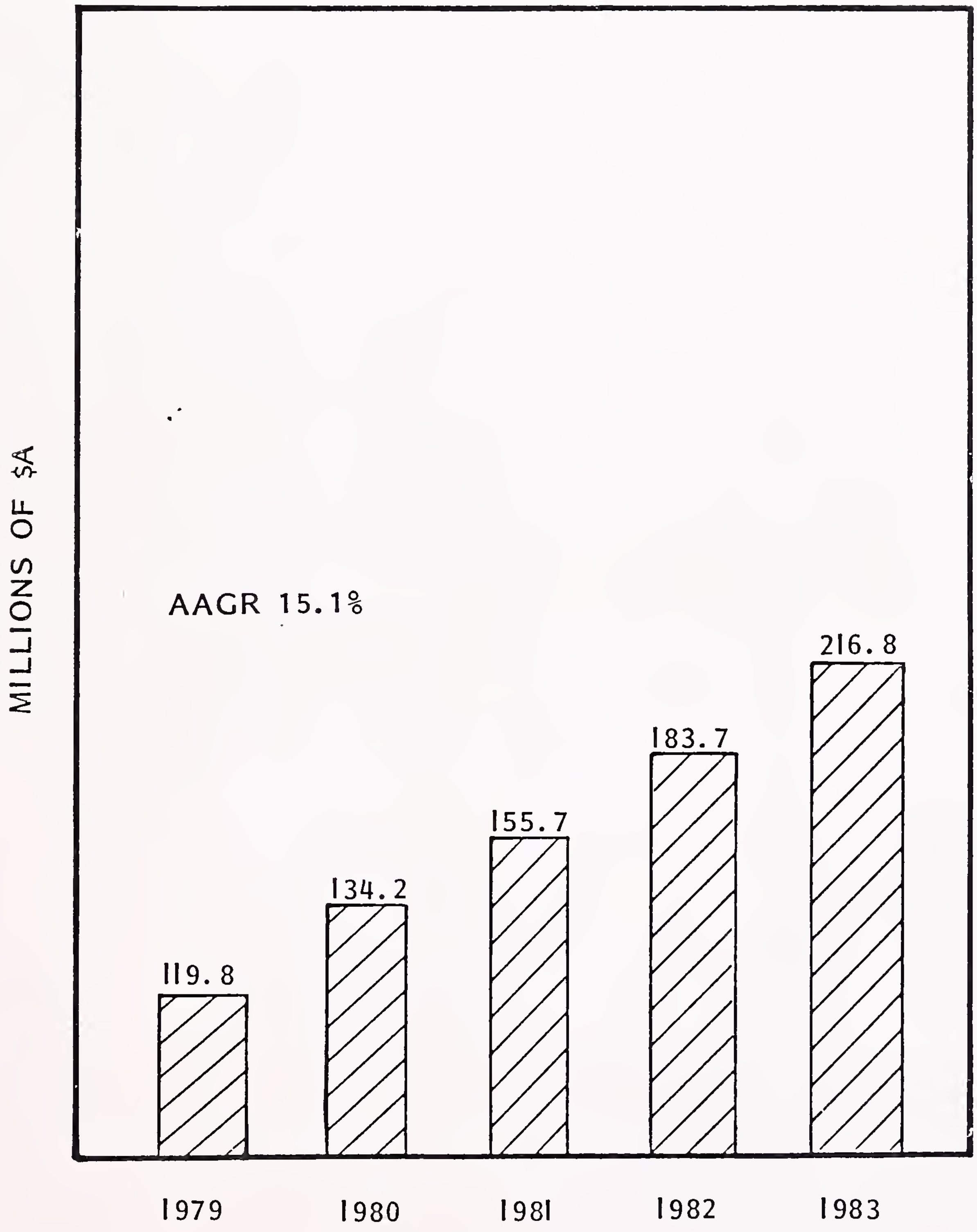
    - The European market will increase at a 15% AAGR.

- These growth rates will create a minor erosion among small RCS accounts, but is primarily attributed to increased use of computing in business, industry and government.

EXHIBIT III-8

AUSTRALIAN MINICOMPUTER/SBC MARKET FORECAST

1979 - 1983



IV USER ANALYSIS

IV USER ANALYSIS

A. INTRODUCTION

- A representative sample of the Australian EDP user community was examined through a series of 115 telephone and on-site interviews.

- A complete listing of companies interviewed is presented in Appendix B.

- The point of contact for these interviews was the EDP/Data Processing Manager or the Managing Director for those companies which did not have an identifiable EDP organizational element.

- In contrast to the vendor population, of the 115 users contacted, there were only three companies which declined to participate because of company policy on the release of information, and two users (transportation and wholesale) who wanted their firm's name to remain confidential.

- The degree of cooperation provided by the users interviewed was generally excellent and, as this chapter indicates, they were candid in their commentary about both user and vendor issues.

B. CURRENT EDP USERS VERSUS POTENTIAL USERS

- The interviews that were conducted during this research focused on companies which had an existing in-house EDP organization with varying degrees of computerization.

- While this study focused on these types of companies, this does not necessarily imply that they should be the main thrust for any marketing campaign. However, it was important in this initial market analysis to establish the characteristics of this marketplace, particularly for the higher range of minicomputer products.

- The small business (less than 100 employees), because of this distribution of industry size within the Australian marketplace, is an important potential market as indicated in the previous chapter.

C. EDP BUDGETS AND EXPECTED GROWTH RATES

- The most difficult informational element to establish among the users interviewed was the amount of EDP expenditures within each company.

- Of the 115 companies interviewed, only 76 (66%) were able to provide partial information that could be analyzed.

- This appears to have occurred for the following reasons.

    - EDP departments were sub-elements of a general budget allocation to a larger functional area and did not have responsibility for budget preparation or monitoring.

    - EDP activities expenditures are not budgeted on a cost allocation basis and are accounted for as part of a larger overhead pool.

- Of the 76 companies that did provide information on expected annual EDP budget increases, there was no significant difference among the industry group with a range of expected increase from 9.3% to 11.8% with a composite average of 10.9%.

- Of this group, the reasons provided for increased expenditures were:

- Inflation	30%
- New Hardware Purchases	29%
- Salary Increases	14%
- Additional Staff	13%
- New Applications development	10%
- Teleprocessing	4%

- Ten of the companies interviewed indicated that they expected their EDP expenditures to decrease or remain at the same level.

- Reasons provided for these stable expenditure levels were related to the state of the Australian economy and the lack of growth or reduction in the turnover of the companies.

D. INSTALLED HARDWARE BASE AND PLANNED EXPANSIONS

- Ninety-seven percent of the users interviewed had on order or were planning to purchase some new types of hardware over the next five years.

- Of this group, 44% had already placed firm orders for new hardware during the next five years.

1. MAINFRAME INSTALLATIONS

- As presented in Exhibit IV-1, IBM was the dominant firm in mainframe installations with 56% representation. Beyond that there was a wide scattering of types of mainframes.

- Installation dates for the mainframes illustrate the recent expansion of computerized activities within Australia and are presented in Exhibit IV-2.

- Of the current installations of mainframes, 66% (76 of 115 users) are planning to change to a different configuration by 1983. Of this group, 37 users have already placed firm orders divided as follows:

  - IBM - 77% (30 users)

  - Honeywell - 8% (3 users)

  - Univac - 5% (2 users)

  - Burroughs - 2.5% (1 user)

  - Amdahl - 2.5% (1 user)

EXHIBIT IV-1

DISTRIBUTION OF VENDOR MAINFRAMES AMONG USERS

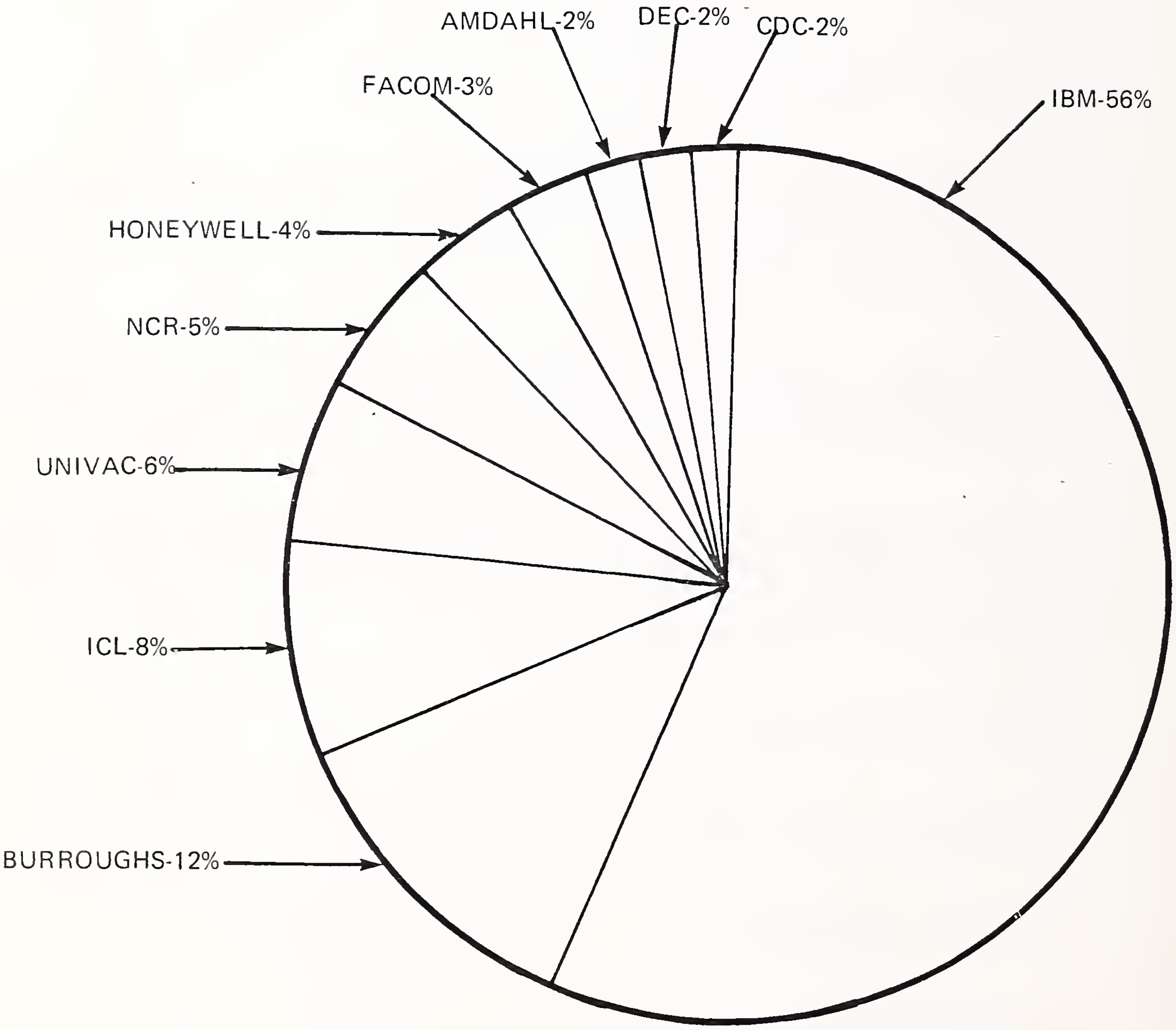
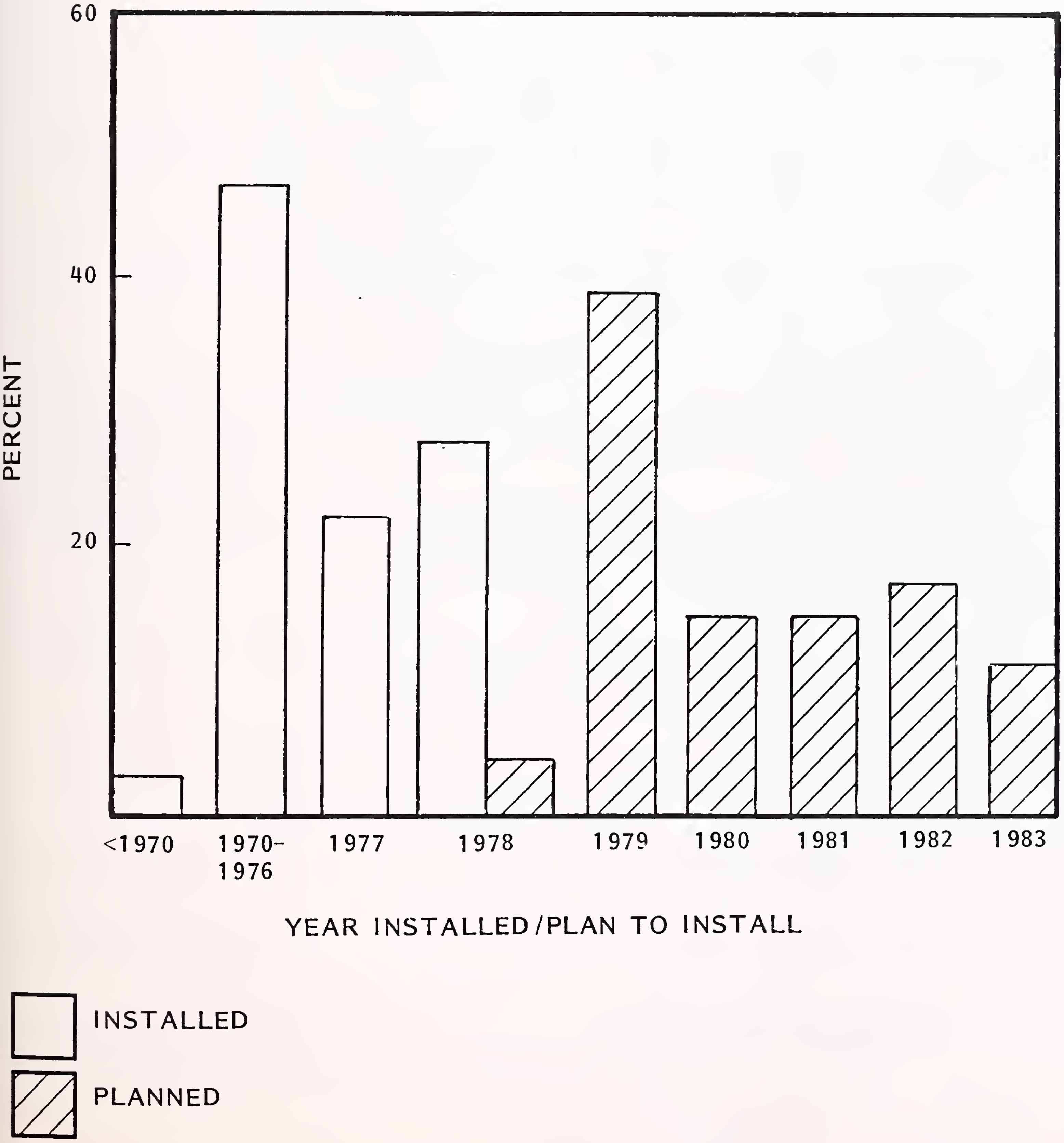


EXHIBIT IV-2

ANNUAL DISTRIBUTION OF INSTALLED AND PLANNED MAINFRAMES



- Primary reasons stated by the users interviewed for purchasing new hardware were:

  - Tax purchase credits.
  - Obsolete mainframe and price/performance of new hardware.
  - Expanded processing requirements exceed installed hardware capabilities.

2. MINICOMPUTER/SBC INSTALLATIONS

- As Exhibit IV-3 indicates, the same type of vendor loyalty does not exist within the minicomputer/SBC arena as in mainframes.

- Although DEC has 16% of the installations, over 38% of the users have two or more vendors hardware installed.

- In terms of percent of units installed, DEC again leads with 20%, but NCR replaces IBM in second position.

- Of the users interviewed, 72% were planning first time or additional purchases during the next five years, as shown in Exhibit IV-4.

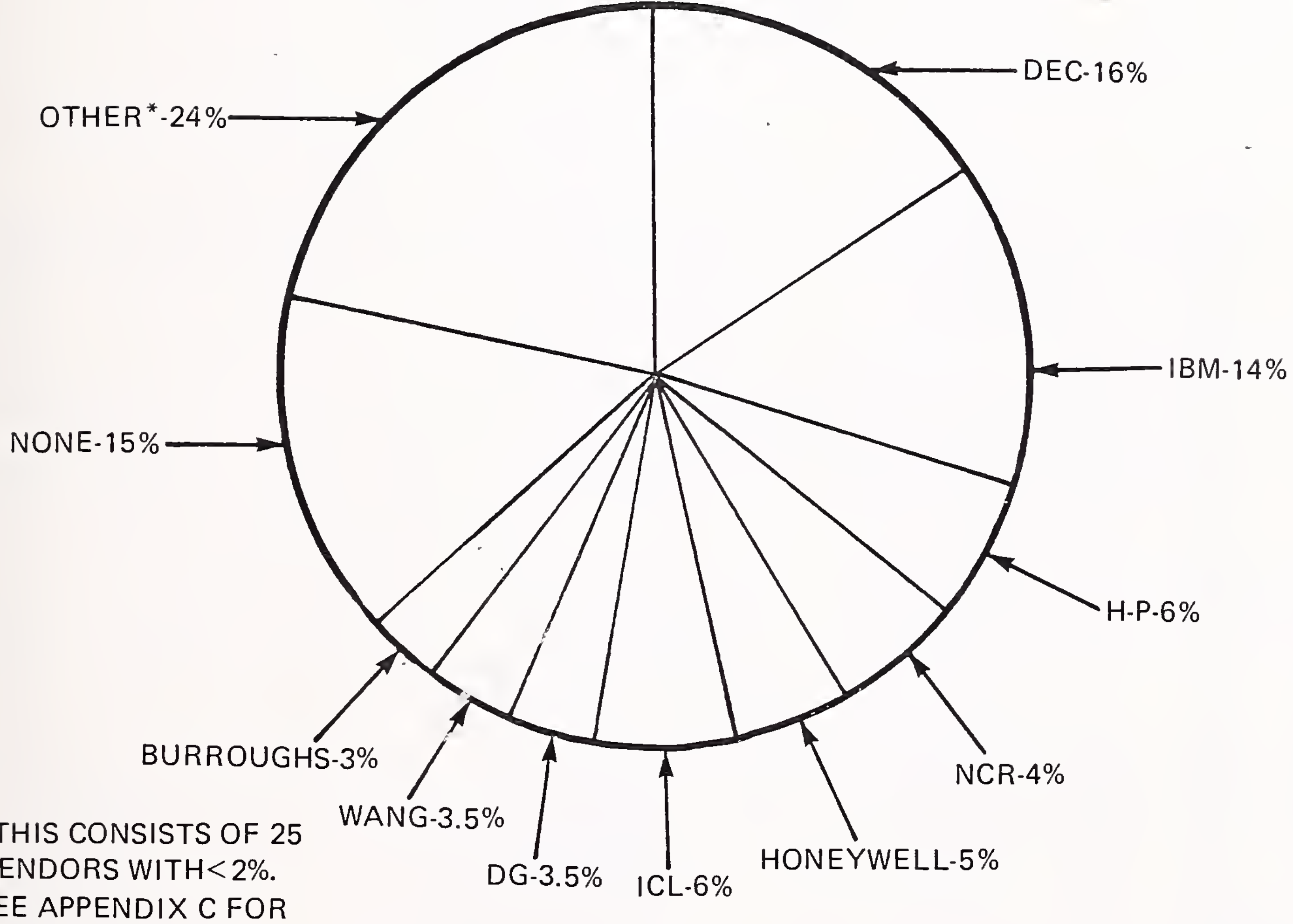
- Of this group, 39% had already placed specific orders with vendors. These firm orders were divided among vendors as follows:

  - IBM - 48.5% (15 users)
  - DEC - 19.5% (6 users)
  - NCR - 7.0% (2 users)
  - Honeywell - 7.0% (2 users)

EXHIBIT IV-3

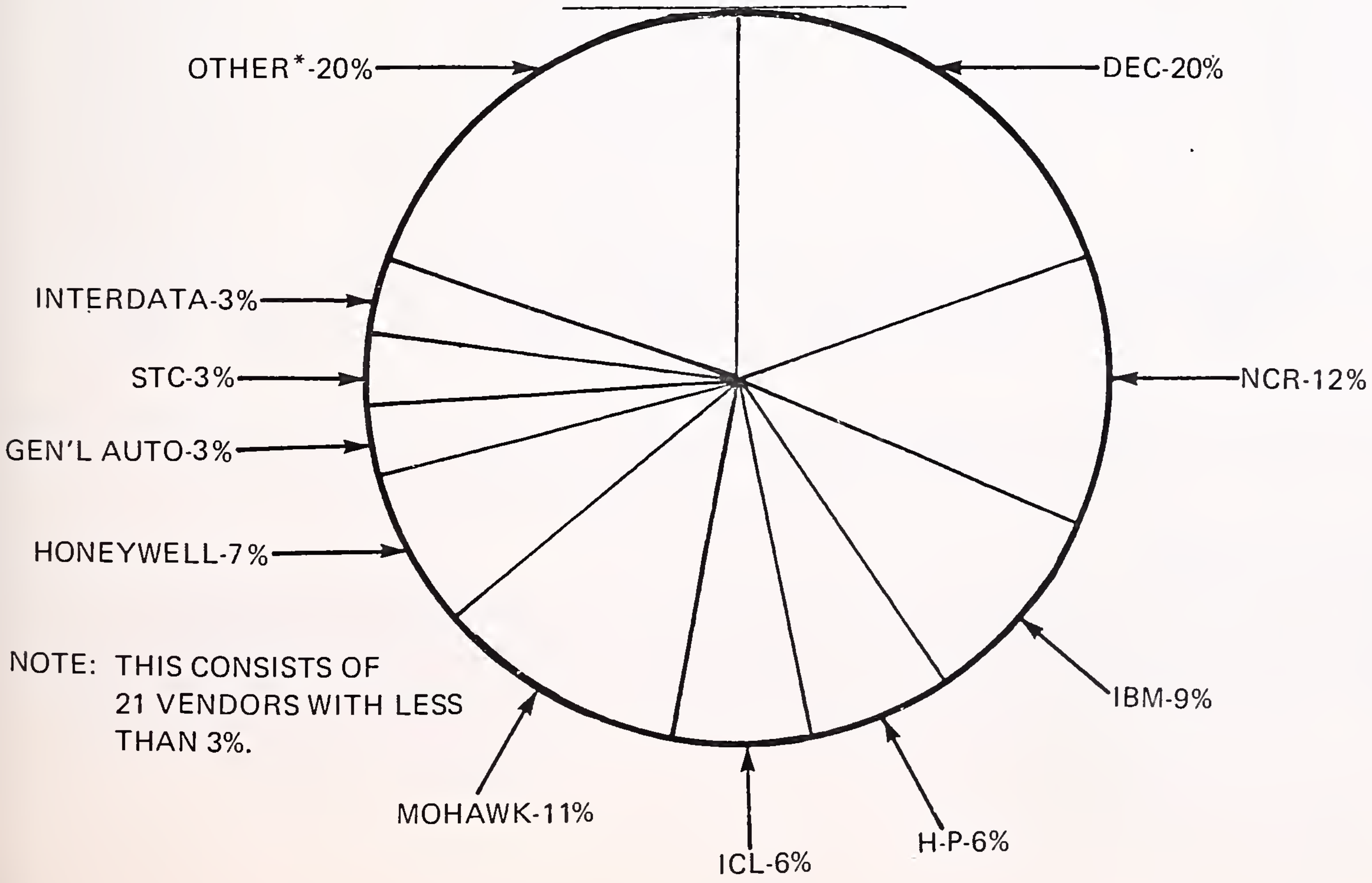
DISTRIBUTION OF MINICOMPUTER/SBC BY VENDOR AND UNITS INSTALLED

VENDOR



*THIS CONSISTS OF 25 VENDORS WITH< 2%. SEE APPENDIX C FOR COMPLETE LISTING

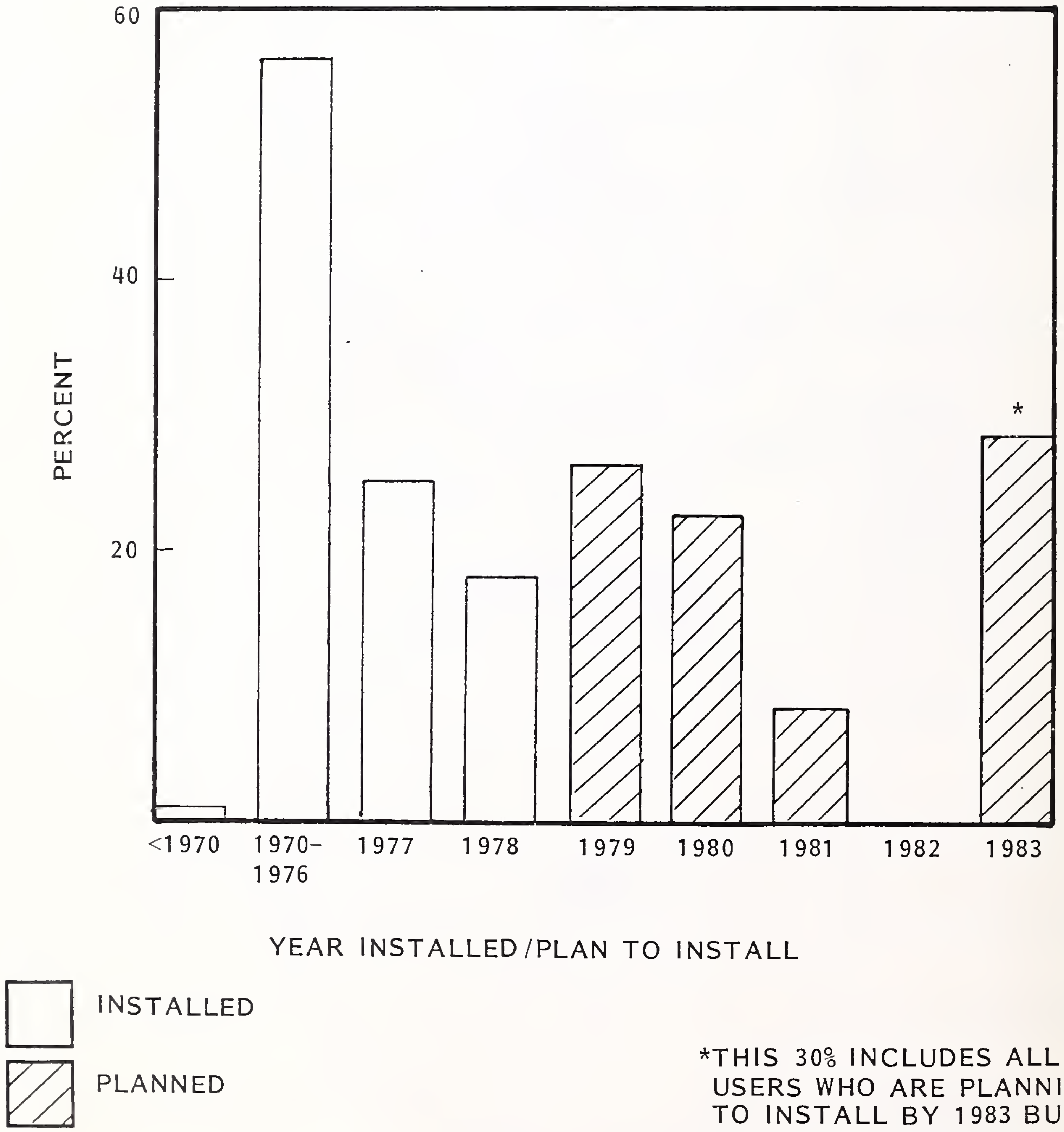
UNITS INSTALLED



NOTE: THIS CONSISTS OF 21 VENDORS WITH LESS THAN 3%.

EXHIBIT IV-4

ANNUAL DISTRIBUTION OF INSTALLED AND PLANNED MINICOMPUTER/SBC



*THIS 30% INCLUDES ALL USERS WHO ARE PLANNING TO INSTALL BY 1983 BUT HAVE NOT IDENTIFIED A SPECIFIC YEAR.

- Hewlett-Packard - 3.0% (1 user)
- Datapoint - 3.0% (1 user)
- Interdata - 3.0% (1 user)
- Raytheon - 3.0% (1 user)
- Sycor - 3.0% (1 user)
- Mohawk - 3.0% (1 user)

- The main reasons stated by users for making these purchases were:
  - To off-load their primary CPUs.
  - To develop additional applications.
  - To provide EDP capabilities to remote locations, either field installations or regional offices.

- As shown in Exhibit IV-5, the dominant current and planned application area for this class of machine was general business which encompasses the full range of accountancy functions, payroll, and in more advanced installations, inventory/stock control applications.

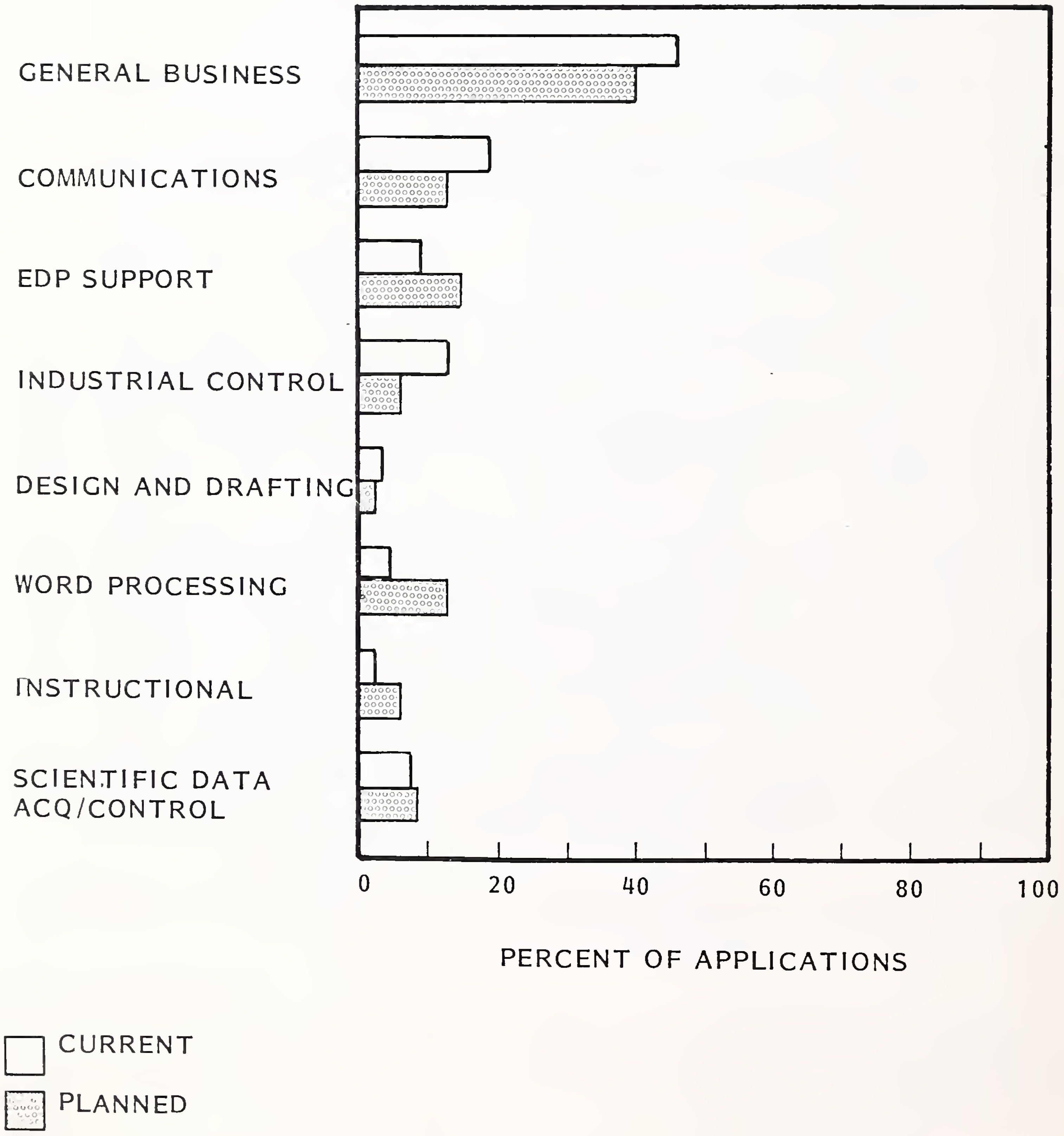
- In analyzing the various industry sectors, there was no significant difference found among the sectors in terms of applications areas.

- Word processing shared the biggest increase from 4% of current applications to 13% of planned applications.

- Program development was an important application area and some EDP organizations were using or planning to use the minicomputers as software

EXHIBIT IV-5

CURRENT AND PLANNED APPLICATIONS FOR MINICOMPUTER/SBC



development and test tools prior to transferring the software to the company's operational machine.

3. TERMINAL INSTALLATIONS

- In most computerized companies the terminal is becoming the primary method of communication with the EDP system.

- This results in an ease in use by both EDP and non-EDP personnel and will allow a wider use of computer based information by end users.

- The terminal is minimizing or eliminating the organizational interface between end users and the in-house EDP organization in order to obtain access to this information.

- Exhibit IV-6 presents a distribution of the terminals installed both by vendors identified and units installed.

- Of the users interviewed, 89% (101 of 115) had terminals installed with a cumulative total of 8,911 terminals installed.

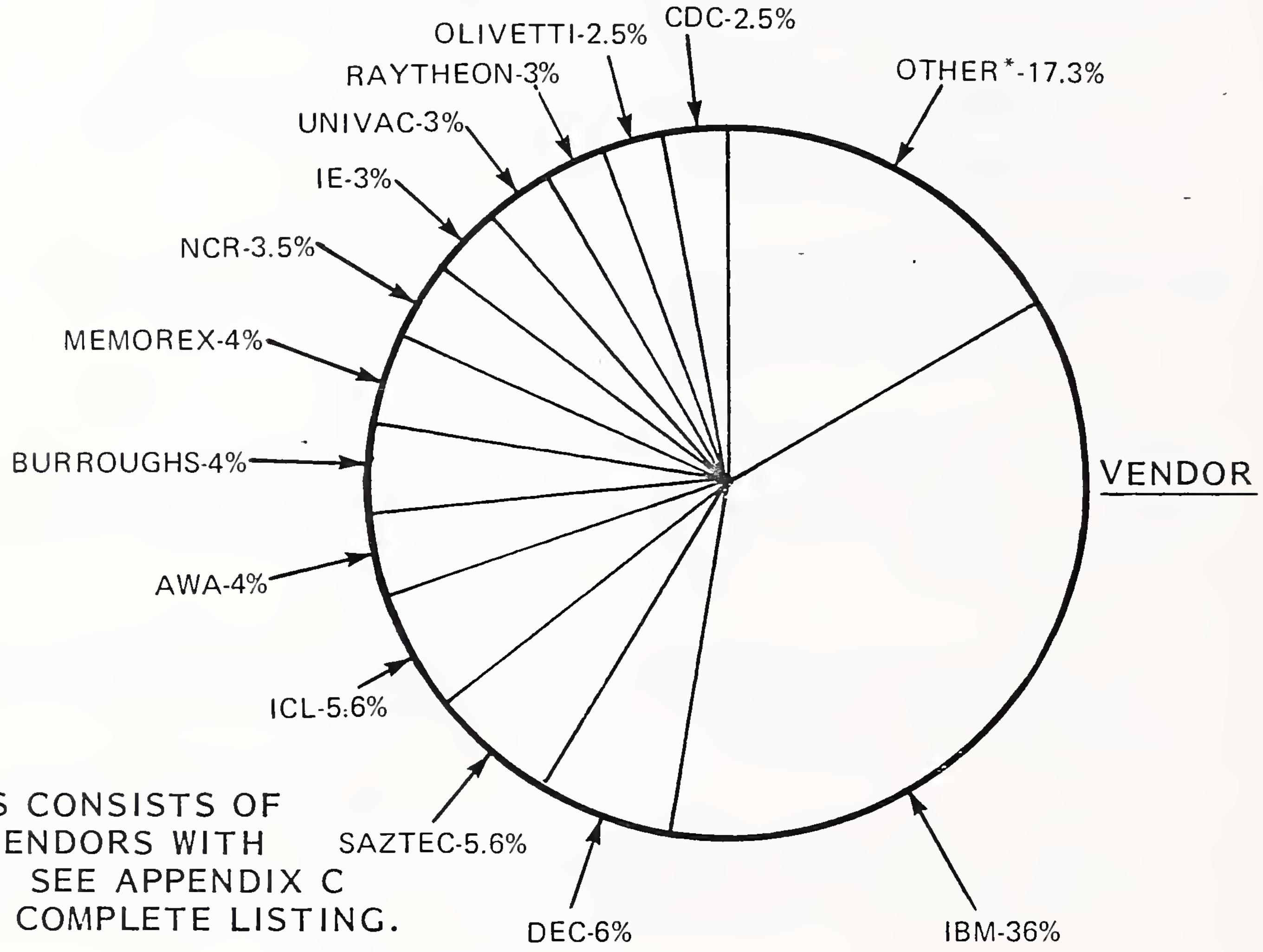
    - IBM is the leader in both vendors identified and units installed, but Raytheon makes a significant shift when looked at from units installed and moves from twelfth position to second with 17.3% of the installed base.

    - Fifty-six percent of the users had terminals installed from more than one vendor.

- Exhibit IV-7 displays a percentage distribution of the installation years for the 8,911 terminals and the users expected planned installation of terminals over the next five years.

EXHIBIT IV-6

DISTRIBUTION OF TERMINALS BY VENDOR AND UNITS INSTALLED



*THIS CONSISTS OF 23 VENDORS WITH 62%. SEE APPENDIX C FOR COMPLETE LISTING.

UNITS INSTALLED

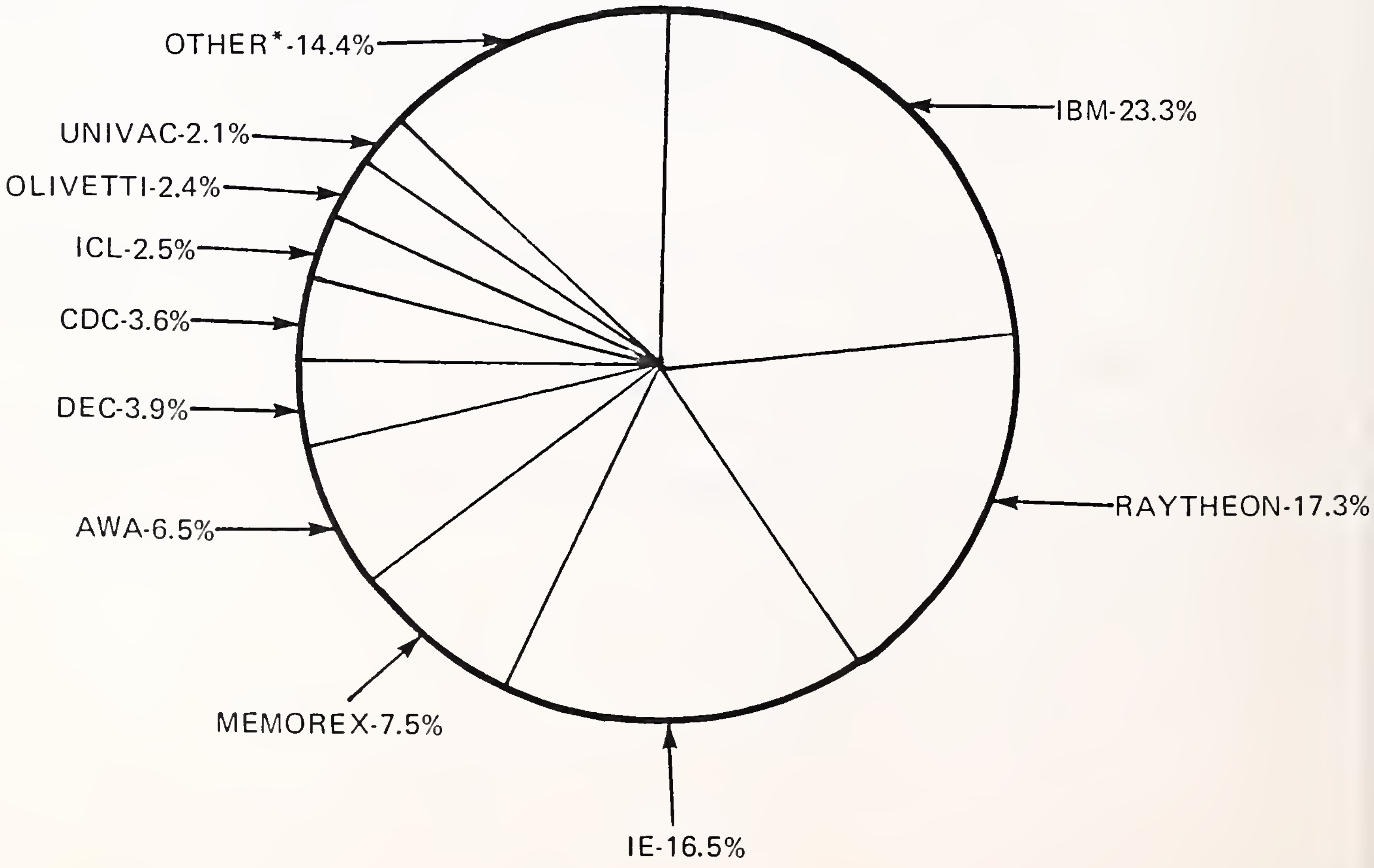
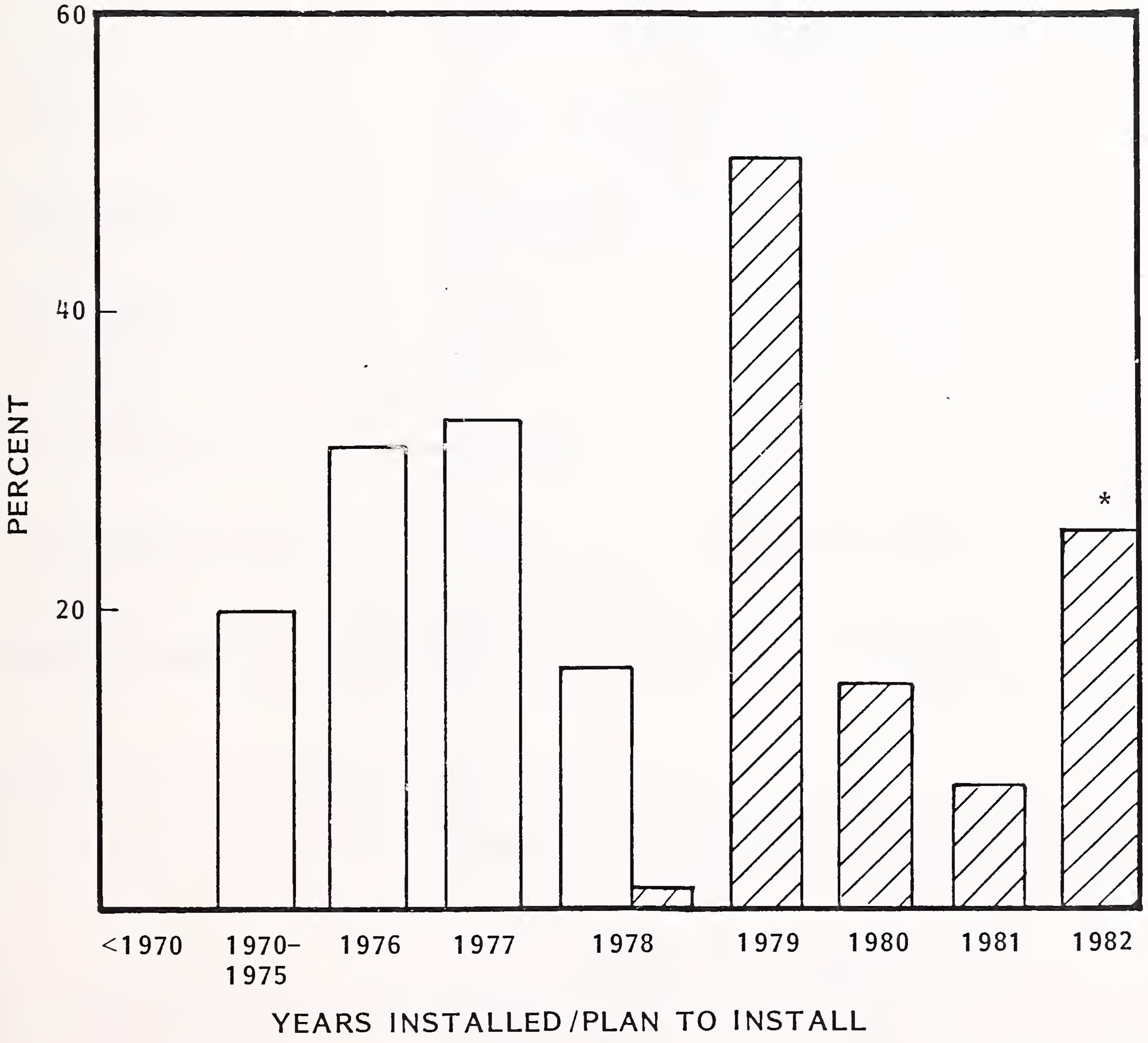


EXHIBIT IV-7

ANNUAL DISTRIBUTION OF INSTALLED AND PLANNED TERMINALS



*THIS 25% INCLUDES ALL USERS WHO ARE PLANNING TO INSTALL BY 1983 BUT HAVE NOT IDENTIFIED A SPECIFIC YEAR.

- It is significant to note that 80% of the installed base of terminals happened within the last three years; prior to 1970 there were no terminals installed among the users interviewed.

- Seventeen percent (19 of 115) of the users have placed firm orders for terminals during the next five years.

- These purchase orders were divided among the following vendors as follows:

  - IBM - 68.5% (13 users)
  - Raytheon - 10.5% (2 users)
  - AWA - 5% (1 user)
  - Genesis - 5% (1 user)
  - NCR - 5% (1 user)
  - Univac - 5% (1 user)

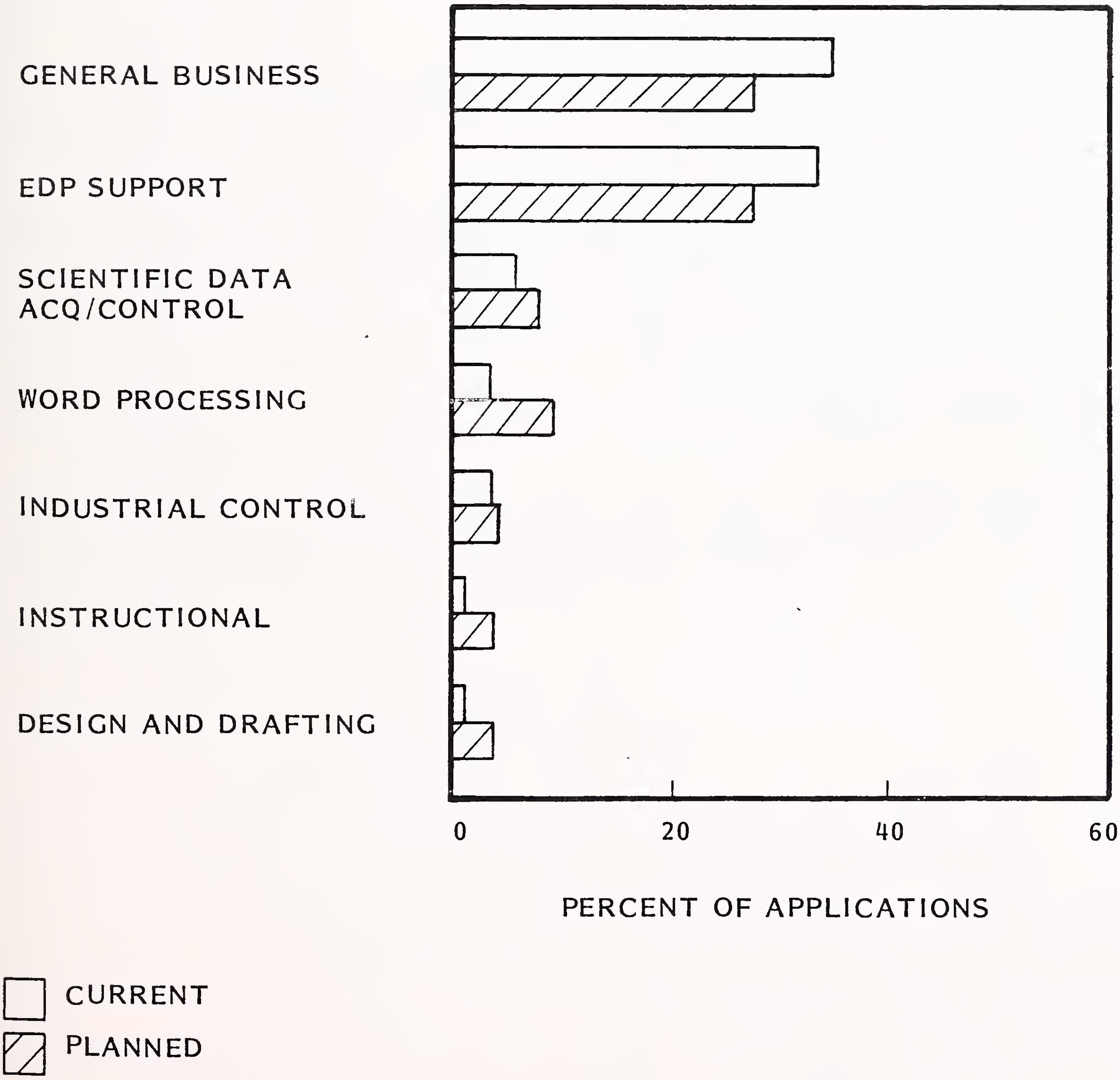
- The application areas for which terminals are employed are very similar to those found for the minicomputer/SBC installations and are presented in Exhibit IV-8.

- While general business applications has the highest percent with 44%, EDP development shows a significant increase of 17% from its use in minicomputer/SBC.

  - The difference for terminals is that there is a higher percentage of use in program development applications.
  - This is the result of the attachment of additional devices directly to the company's mainframe for program development.

EXHIBIT IV-8

CURRENT AND PLANNED APPLICATIONS FOR TERMINALS



- Again, word processing shows the biggest jump from 3% to 8% indicating a significant increase in the use of this relatively new technology.

E. IMPACT OF DISTRIBUTED DATA PROCESSING (DDP) ON HARDWARE PROCUREMENTS

- The reality of DDP is advancing into the user community at a speed less than vendors and EDP consultancys would like potential buyers to believe.

- Only 20 of the 115 users interviewed were planning on establishing a data network of minicomputers and mainframes.

- Of these 20 users, nine were planning to operate their minicomputers in a remote batch mode only.

- Although DDP offers operational advantages to certain types of organizations, it is not the final solution to all future data processing business problems that can be solved with the applications of data processing solutions.

- However, DDP has not received universal acceptance among the users interviewed.

- It is important to note that some of the more conservative EDP managers were not planning on volunteering as DDP pioneers.

F. USER HARDWARE SELECTION METHODS

- The selection method for initial or additional hardware purchases by the users interviewed is presented in Exhibit IV-9.

- The importance of this exhibit is that 53% of the user population interviewed is relying on competitive bidding as the major method of hardware purchase.

- This is the result of two factors:

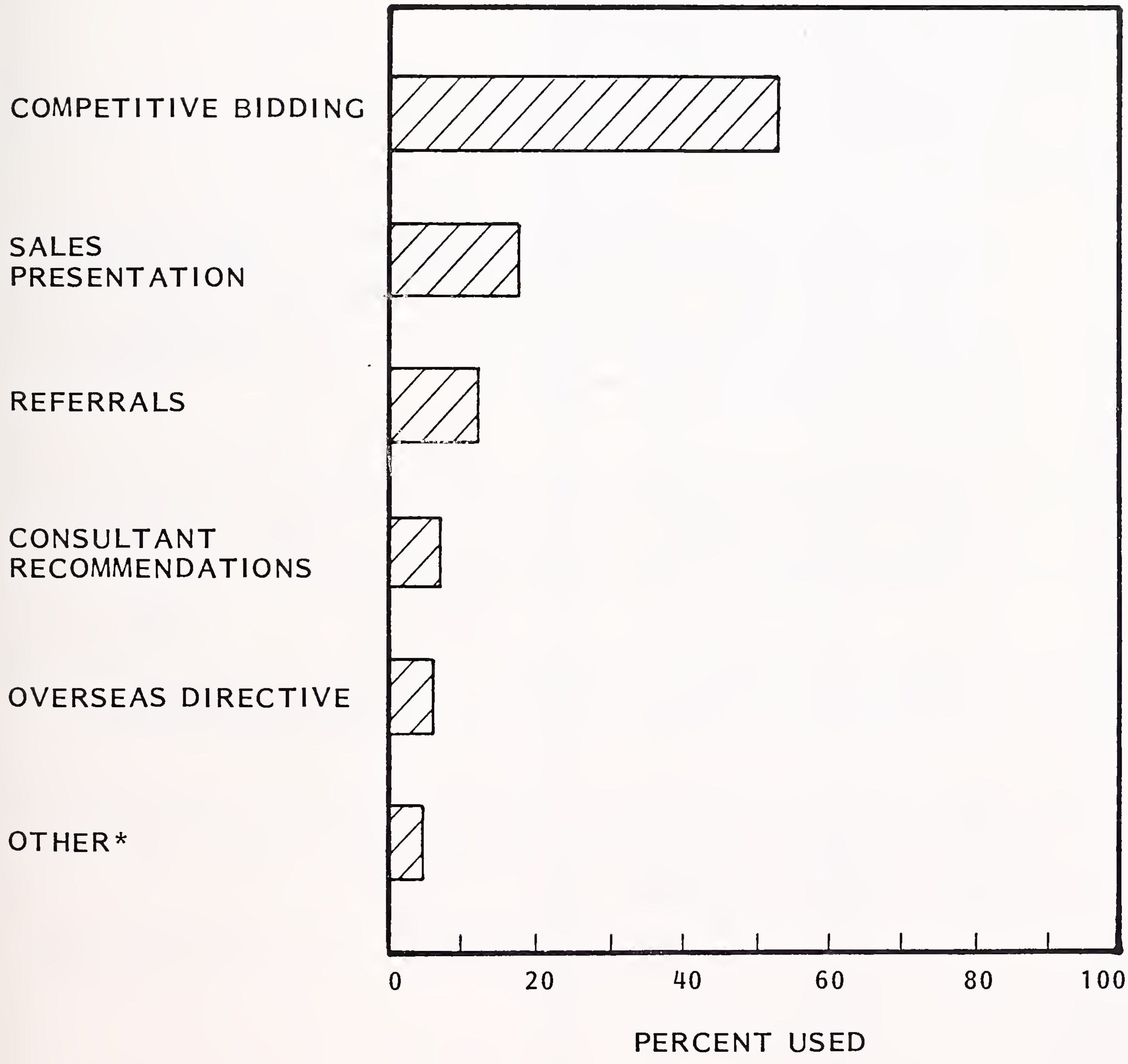
    - The increased level of sophistication of EDP management in negotiating with potential vendors.

    - The wide range of available products from multiple vendors which permit the EDP management, as one EDP manager put it, "to strike the best deal and get lots of goodies that we could not have done three years ago."

- Clearly, the user community is taking advantage of the intense competition among vendors for new accounts in what appears to be a buyer's marketplace.

EXHIBIT IV-9

USER HARDWARE SELECTION METHODS



*OF THIS GROUP, TEN USERS ALWAYS STAY WITH CURRENT VENDOR, THREE HAVE INTERNAL SYSTEM FOR SELECTING VENDORS.

G. VENDOR SELECTION CRITERIA

- To obtain insight into the relative importance of various selection criteria in the purchase of new hardware, users were asked to rate a series of criteria.

- The results of these user ratings is presented in Exhibit IV-10.

- The importance of this information is:

  - Support and services are more important than actual hardware capabilities.

  - Price of equipment is not very important, but it should be noted that this is not a result of lack of concern about the economics of the purchase, as much as it is a reflection of the competitive nature of pricing by vendors in the marketplace.

  - Users are seeking vendors with which they can maintain a long-term service relationship and the ability of the vendor to demonstrate company stability during the selling process is vital.

  - Users will be reluctant to buy from a vendor if they cannot demonstrate a stable business base that will ensure post installation service.

- An interesting attitude emerged around the salesperson contact rating. Although the salesman was not rated very high, a bad salesman could certainly destroy his company's chance for a sale.

EXHIBIT IV-10

PERCEPTION OF RELATIVE IMPORTANCE OF USER SELECTION CRITERIA BY USERS

CRITERIA	WEIGHTED SCORE*	VENDOR RANKING**
HARDWARE MAINTENANCE CAPABILITY	4.5*	3
SOFTWARE SUPPORT CAPABILITY	4.1	4
PRODUCT RELIABILITY	3.7	2
PRICE/PERFORMANCE	3.7	5
FIELD UPGRADABILITY	3.7	7
VENDOR IMAGE/REPUTATION IN FIELD	3.6	1
SINGLE VENDOR FOR ALL SYSTEM PURCHASES	2.7	6
VENDOR SALESMAN CONTACTS	2.7	8
FINANCIAL ARRANGEMENTS	2.4	9
**SEE CHAPTER V FOR VENDOR WEIGHTED SCORES		

*LEGEND: 5 = HIGH
1 = LOW

**SEE CHAPTER V FOR VENDOR WEIGHTED SCORES

H. TYPES OF PURCHASING TECHNIQUES EMPLOYED

- Exhibit IV-11 provides a comparison of the various purchasing techniques employed by the users interviewed for both minicomputer/SBC and terminals.

- For both types of hardware, purchase was the most prevelant method of acquiring hardware.

- The capital expenditure and associated tax credits partially account for the large number of outright purchases by the users interviewed.

- Most of the users that were using rental as the preferred purchasing techniques indicated that they did this as a means of evaluating the equipment over a longer time period prior to making a buy decision.

EXHIBIT IV-11

DISTRIBUTION OF USER PURCHASING METHODS

METHOD	MINICOMPUTERS		TERMINALS	
	NO. OF MENTIONS	PERCENT	NO. OF MENTIONS	PERCENT
PURCHASE	59	71%	65	63%
LEASE	17	20	26	25
RENT	7	9	12	12
TOTAL	83	100%	103	100%

I. USER RATINGS OF AUSTRALIAN EDP VENDORS

- Users were asked to identify who they believed were the leading vendors in Australia both in terms of the overall EDP marketplace and specifically for minicomputer/SBC/terminal market segment.

- Exhibit IV-12 displays a comparison of these two sets of ratings and is significant for the following reasons:

  - IBM has a lower image as a minicomputer/SBC/terminal vendor going from first position to fourth.

  - DEC shows a reversal of IBM's relative rating, going from eighth position to first in the minicomputer/SBC segment.

- Five companies were identified as leading vendors in both categories:

  - IBM

  - DEC

  - Honeywell

  - Burroughs

  - NCR

- However, the overall conclusion from this data is the large number of vendors which have established a position in the Australian marketplace with a combined total of 22 companies for both groups.

EXHIBIT IV-12

USER RATING OF MAJOR EDP VENDORS AND MINICOMPUTER/SBC/TERMINAL VENDORS

MAJOR EDP VENDOR	MENTIONS								MINI/SBC VENDOR
	1st	2nd	3rd	*	1st	2nd	3rd	*	
IBM	108	1	–	326	59	12	3	204	DEC
HONEYWELL	–	29	22	80	6	14	9	55	HEWLETT-PACKARD
BURROUGHS	–	23	14	60	7	14	14	63	DATA-GENERAL
ICL	–	12	23	47	6	12	4	46	IBM
UNIVAC	–	11	15	37	2	4	2	16	INTERDATA
NCR	1	8	5	24	–	5	5	15	WANG
FACOM	–	5	5	15	–	2	4	8	ICL
DEC	–	3	2	8	1	3	–	9	FOUR PHASE
AMDAHL	–	1	–	2	1	4	2	13	PRIME
MEMOREX	–	1	–	2	1	1	1	6	SIGMA
ITEL	–	–	1	1	2	1	–	7	DATRONICS
					1	2	–	7	HONEYWELL
					1	2	–	7	NCR
					–	1	–	2	NIXDORF
					–	1	–	2	BURROUGHS
					–	–	1	1	OLIVETTI

*WEIGHTED SCORE

J. VENDOR SALES CONTACTS WITHIN THE USER COMMUNITY

- This part of the research was designed to identify which vendors in both the minicomputer/SBC and terminal marketplace were calling on which segment(s) of the user community.

- The results obtained were not what were anticipated and can best be summarized by the comment of one user who was asked if he could please identify the vendors who had called on him last within the last year:

  - "Last year! I think every bloody vendor in Australia tried to see me last week."

- Cold-calling by vendors appears to have reached a point of saturation and it is very difficult for vendors to penetrate the EDP management structure unless invited in to discuss a specific product or problem area.

- Established vendors with long-term company relationships are able to accomplish this with much more ease than the vendor who is attempting to present a new product offering.

- Comments made by EDP managers about sales contacts are important since they portray the type of user acceptance most cold-calling received.

  - "Don't generally let vendors in the door. We ring them if we need specifications on their products."

  - "For product reference purposes only - they only get in once."

  - "They got my message. I call them when I need data."

- "Too many - collect their brochures for our files. I wouldn't have time to see them all."

- "None of their sales presentations are very good. I just collect their literature, give them a cup of tea and send them packing."

- "Not of much value - would prefer a mailing."

- "Only take telephone calls - they don't get through the door."

- "Too many vendors - won't be fooled by agents. I must deal directly with the manufacturer."

K. USER INFORMATION SOURCES ABOUT HARDWARE PRODUCTS

- If, as indicated in the previous section, cold calling is not the road for vendors to achieve sales goals, then what is EDP management relying on as their primary information sources for new EDP productrs and services.

- Exhibit IV-13 presents the results of this line of inquiry in terms of the reliance of EDP managers on various information sources.

- Although there is no clear leader among available information sources, over 60% of the vendors indicated that they used multiple information sources.

- Other important sources to some users were referrals from other EDP organizations. As in the U.S., this information is provided via:

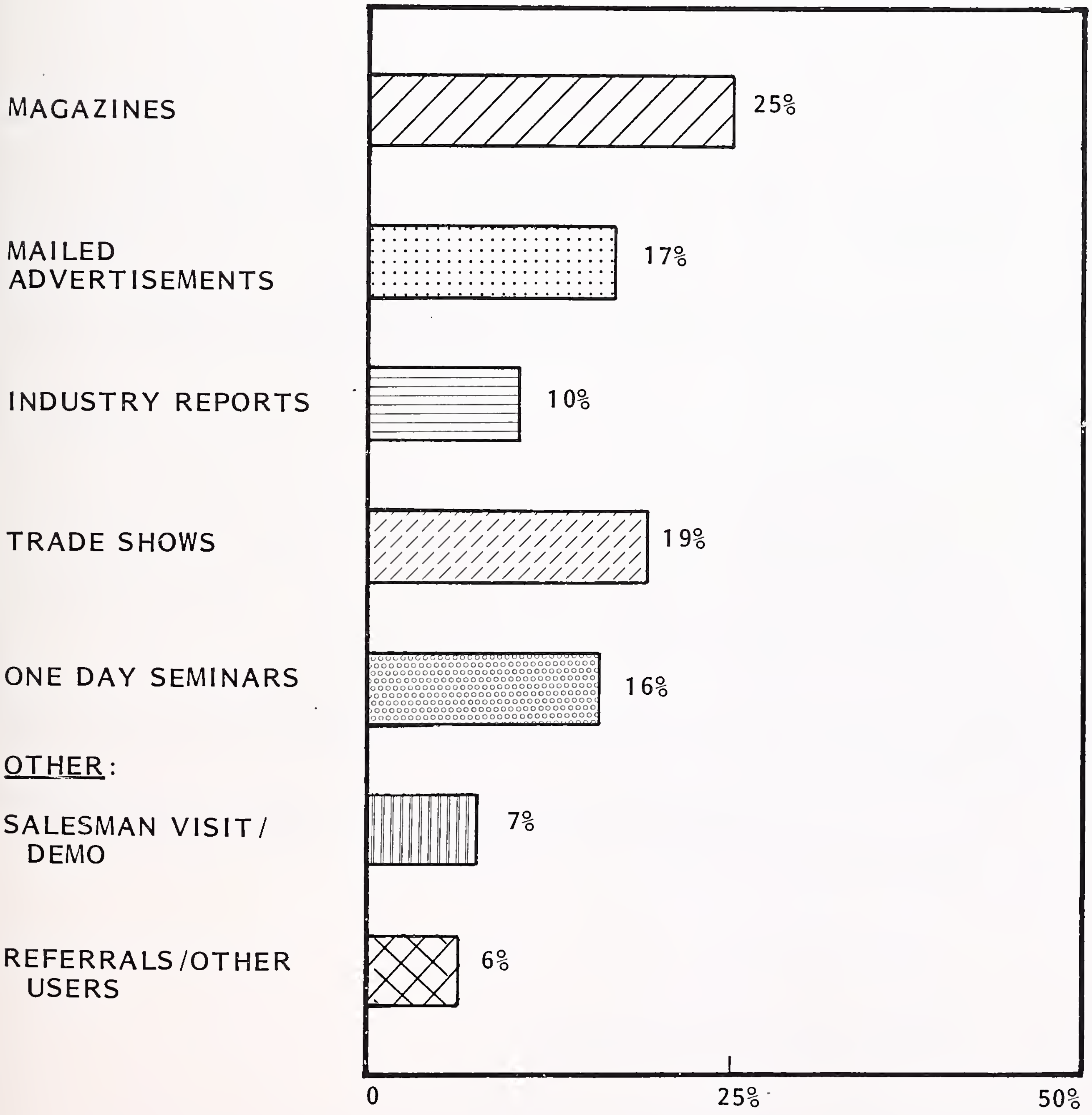
  - Informal communication from previous professional or corporate associations.

  - Formal user groups which are usually established by vendors.

- It is important to recognize that these information sources are only for data collection purposes, and that EDP managers will insist upon working demonstrations of the hardware prior to actual purchase. As a function of system complexity, benchmarking may be required.

EXHIBIT IV-13

USER INFORMATION SOURCES FOR EDP PRODUCTS



PERCENT OF MENTIONS

(TOTAL MENTIONS = 279)

L. USER RATINGS OF GENERAL BUSINESS AND EDP PUBLICATIONS

- Since periodical advertising is a traditional means of presenting information to potential buyers about new products and service, the users interviewed were asked to identify what they believed to be the leading publications in Australia as sources of information about EDP products.

- Exhibits IV-14 and IV-15 present the results of this research in terms of readership of both general and EDP publications.

- The readership of general business publications by EDP managers was low with 34% indicating that they read no general magazines.

- In the area of EDP publications, the main publications consistently read by EDP management are:

  - Datamation.

  - ComputerWorld.

  - Australian ComputerWorld.

- Among the general business publications, the top three publications read by EDP management were:

  - Rydges.

  - The Australian.

  - Modern Office/Financial Review.

- EDP managers indicated the primary reason for reading "The Australian" was the weekly (Tuesday) section on computers edited by Frank Linton-Simpkins.

EXHIBIT IV-14

USER RATING OF GENERAL BUSINESS PUBLICATIONS

PUBLICATION	MENTIONS			WEIGHTED SCORE*
	1st	2nd	3rd	
RYDGES	23	3	3	78
THE AUSTRALIAN	9	6	2	41
FINANCIAL REVIEW	8	4	3	35
MODERN OFFICE	6	8	1	35

*WEIGHTED SCORES WERE DERIVED BY ASSIGNING 3 POINTS FOR 1st; 2 POINTS FOR 2nd; 1 POINT FOR 3rd.

EXHIBIT IV-15

USER RATING OF EDP PUBLICATIONS

PUBLICATIONS	MENTIONS			WEIGHTED SCORE*
	1st	2nd	3rd	
DATAMATION	36	8	1	126
COMPUTERWORLD	16	20	4	92
AUSTRALIAN COMPUTERWORLD	8	15	5	59
COMPUTER WEEKLY	12	8	4	56
PACIFIC COMPUTER WEEKLY	1	10	2	23

*WEIGHTED SCORES WERE DERIVED BY ASSIGNING 3 POINTS FOR 1st; 2 POINTS FOR 2nd; 1 POINT FOR 3rd.

V COMPETITIVE ENVIRONMENT

V COMPETITIVE ENVIRONMENT

A. INTRODUCTION

- The nature of the Australian minicomputer/SBC/terminal competitive environment was examined through a series of 25 telephone and on-site interviews with hardware vendors, RCS vendors, and system houses.

- At the midpoint review meeting, it was mutually decided to decrease the number of RCS vendors and systems house interviews because of the lack of application of the information and to increase on-site hardware vendor interviews because of the extreme reluctance of vendors to provide information about their company through the anonymous telephone media.

    - Exhibit V-1 provides a comparison of the original and final vendor interview mix.

- As expected, IBM politely refused to participate in the study. Likewise, Data General and NCR declined to provide any information for this study.

- The degree of cooperation of the other vendors varied with the most sensitive areas being annual sales and number of units sold.

- While it is important to differentiate the minicomputer/SBC and the terminal markets, the competitive issues are so similar that they are dealt with in

EXHIBIT V-1

MINICOMPUTER/SBC/TERMINAL/RCS/ SYSTEM INTERVIEW MIX

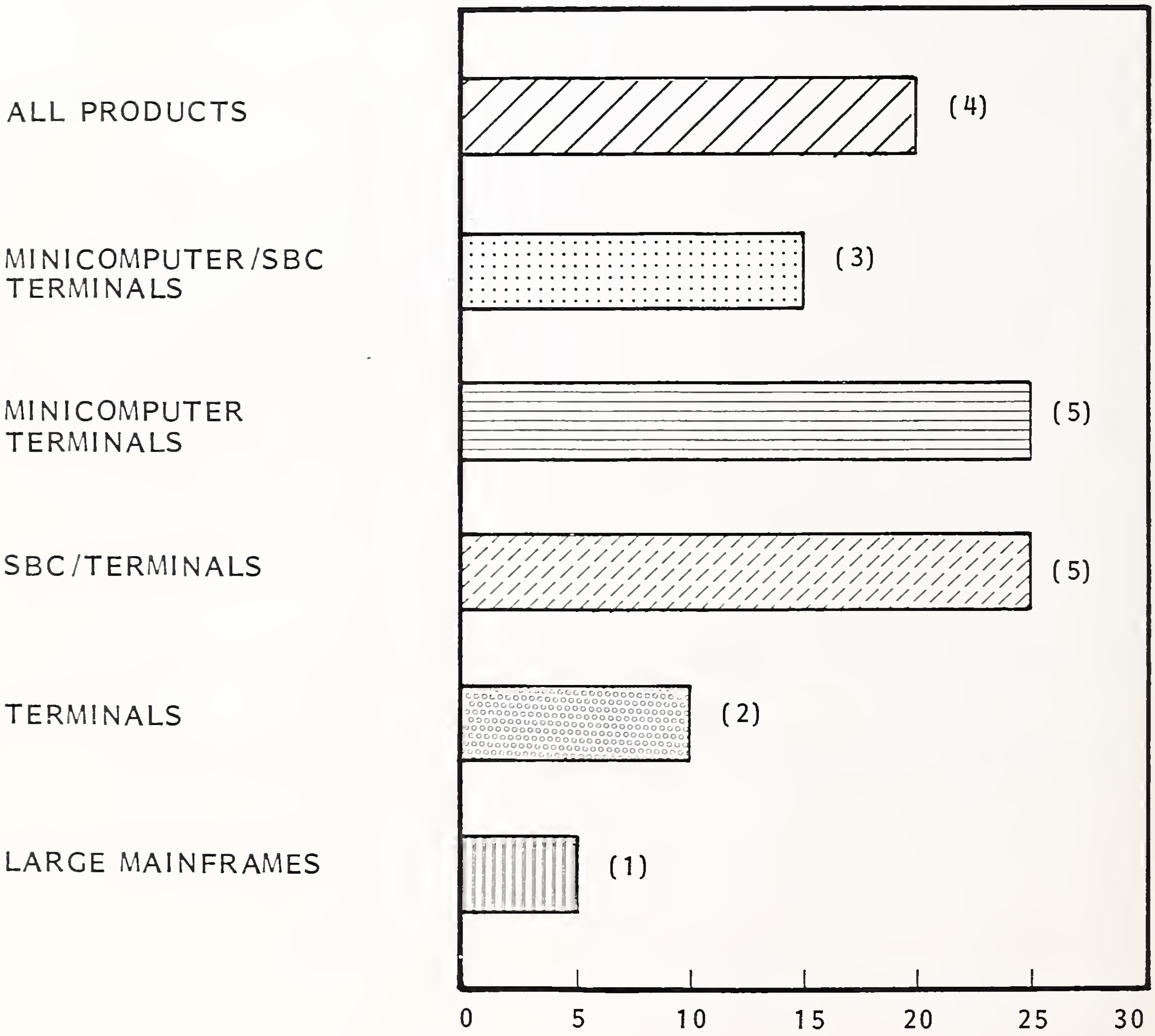
VENDOR TYPE	INTERVIEW MIX			
	ORIGINAL		FINAL	
	PHONE	ON-SITE	PHONE	ON-SITE
MINI/SBC/TERMINAL	12	3	3	17
RCS/SYSTEM	8	2	3	2
SUBTOTAL	20	5	6	19
TOTAL	25		25	

combination during the discussions in this chapter. Where important differences did exist they are presented separately.

- Exhibit V-2 presents the distribution of product types sold by the vendors interviewed. Since sufficient product literature was collected from the majority of the vendors and will be delivered to Philips as a part of the data package provided with this research study, it was decided that any cataloguing of the hardware characteristics within the body of the report was not germane to the main thrust of the study - establishing strategic alternatives for Philips.

EXHIBIT V-2

PERCENTAGE DISTRIBUTION OF PRODUCT TYPES BEING SOLD BY VENDORS



PERCENT SELLING PRODUCT TYPES

B. AUSTRALIAN MINICOMPUTER/SBC/TERMINAL PRODUCT LINES

- The Australian marketplace represents a microcosm of product lines that are available on an international basis with strong representation from the U.S., European, and Japanese electronics industries.

- There are no true differentiators within the marketplace for these products from a hardware viewpoint.

  - The basic reliability of the assembled hardware components into various system configurations is operationally equal.

  - Simply stated, all hardware works.

- The differentiating characteristics of the products offered by the vendors are found outside the hardware and are segmented into two complementary areas:

  - Demonstrated ability to provide both hardware and software maintenance.

  - Availability of applicable and easily used software programs.

- As a result, in Australia and the rest of the world marketplace, the clear distinction between products and services is becoming more blurred and any company developing a corporate strategy must recognize this basic market characteristic.

C. MINICOMPUTER/SBC/TERMINAL SALES AND EXPECTED GROWTH BY VENDORS

- Exhibit V-3 presents the range and average and the expected annual average growth rate for minicomputer/SBCs and terminals provided by the vendors interviewed.

- Only 48% of the vendors (12 of 25) were willing to provide this information.

- INPUT believes that the quantitative values provided by the vendors are somewhat inflated and are more reflective of what they hope to achieve rather than the reality of the marketplace.

- As can be seen from the exhibit, the average price of the minicomputer/SBC is of a higher order-of-magnitude than the average terminal sale.

- In order to achieve the same sales volume, a terminal salesperson would have to sell ten terminals for every one minicomputer/SBC sold.

- It is also important to note the wide range in the sale of minicomputer/SBC as compared with the terminals.

  - Terminal prices have a range of only about 100%.

  - Minicomputer/SBC have a range of over 500%.

- Exhibit V-4 and V-5 present the mode of purchase reported by the vendors.

  - Purchase or lease were the primary modes for minicomputer/SBC and is a function of the capital position of the buyer.

  - There is a high lease level for terminals because users prefer to evaluate multiple products for long time periods prior to committing to a major purchase.

EXHIBIT V-3

RANGE AND AVERAGE OF TYPICAL MINICOMPUTER/SBC AND TERMINAL SALE AND VENDOR'S EXPECTED ANNUAL AVERAGE GROWTH RATE (AAGR) TO 1983

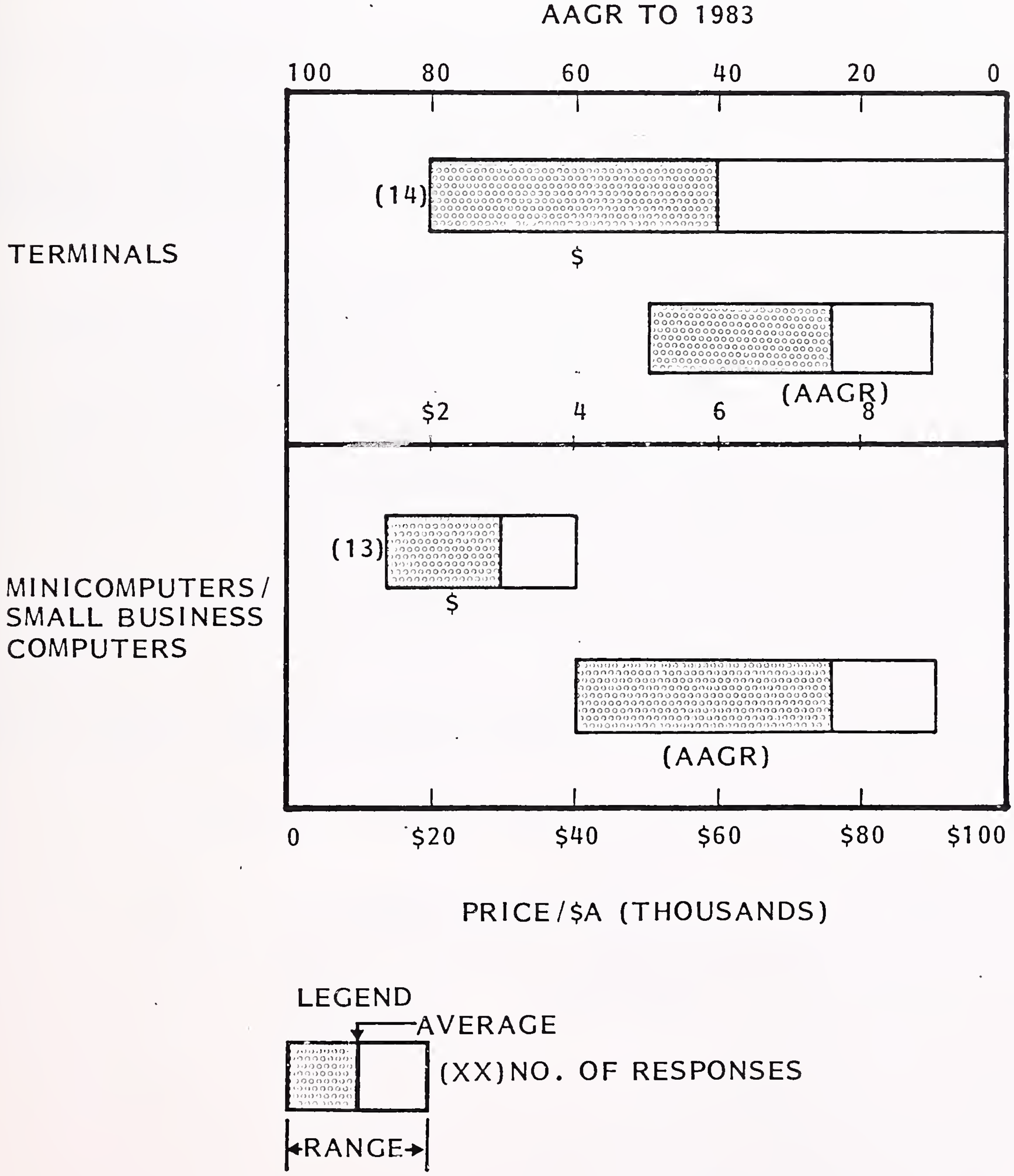


EXHIBIT V-4

RANGE AND AVERAGE OF MINICOMPUTER/SBC MODE OF PURCHASE BY VENDORS

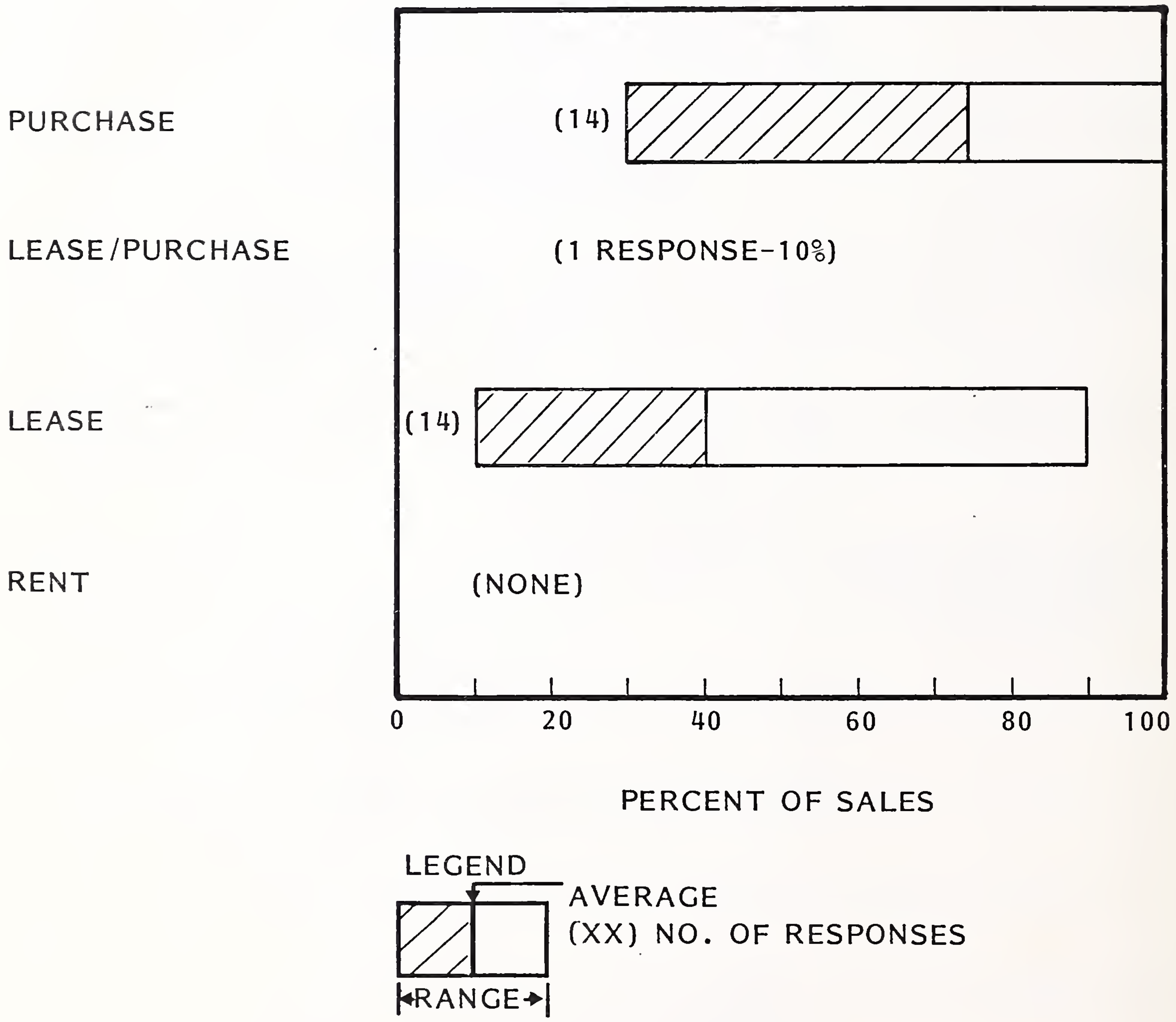
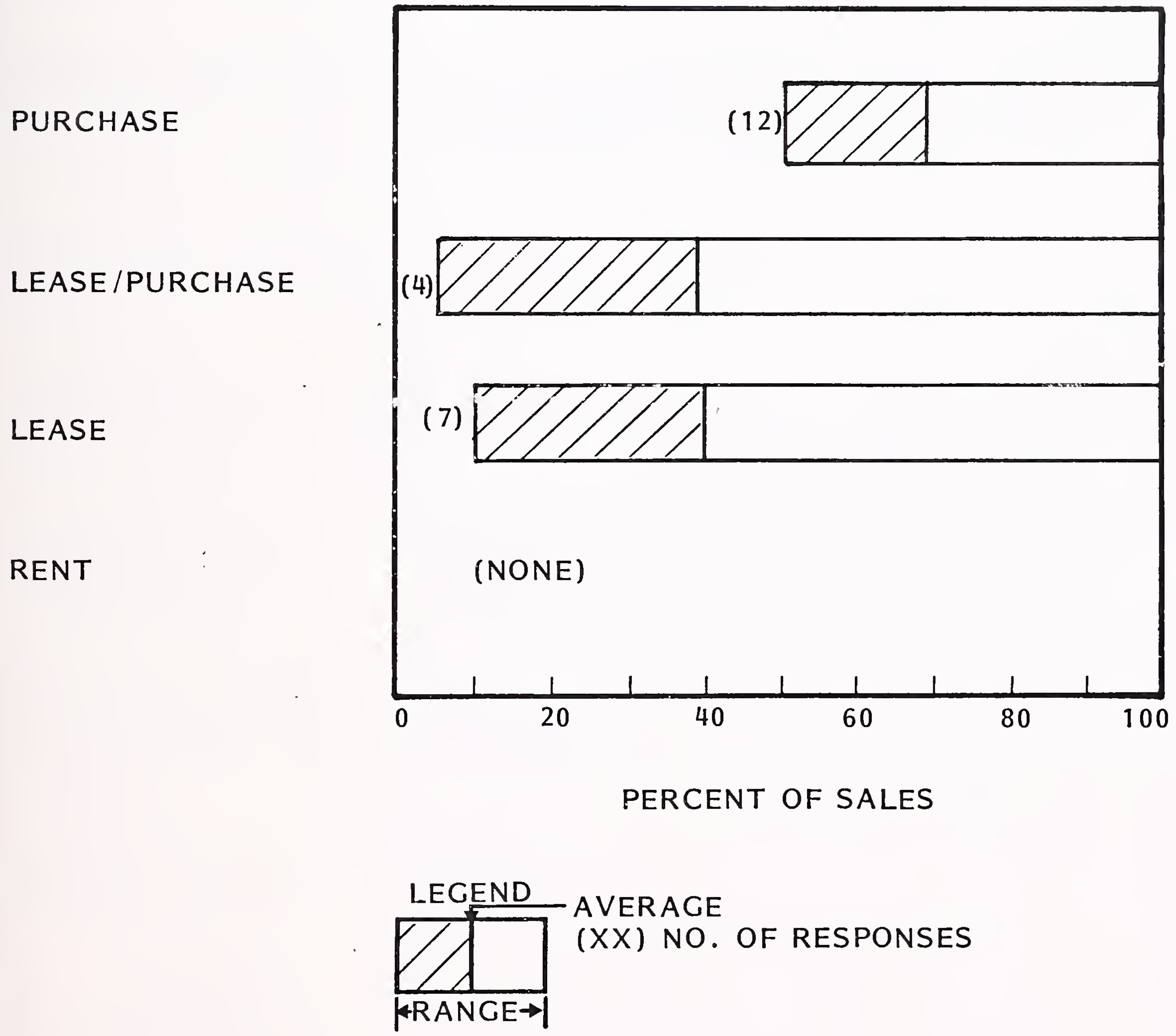


EXHIBIT V-5

RANGE AND AVERAGE OF TERMINAL MODE OF PURCHASE BY VENDORS



D. APPLICATION AREAS OF MINICOMPUTER/SBC AND TERMINALS SALES

- There is a close correlation between information provided by both vendors and users in terms of the application areas where these two types of hardware are being used.

- Both the vendors and users identified general business as the primary application area with EDP being second in importance for both groups.

- Exhibits V-6 and V-7 provide the range and average for the vendors in terms of application areas in which their products were placed.

EXHIBIT V-6

PERCENTAGE RANGE AND AVERAGE OF MINICOMPUTERS/SBC SALES BY APPLICATION FOR VENDORS

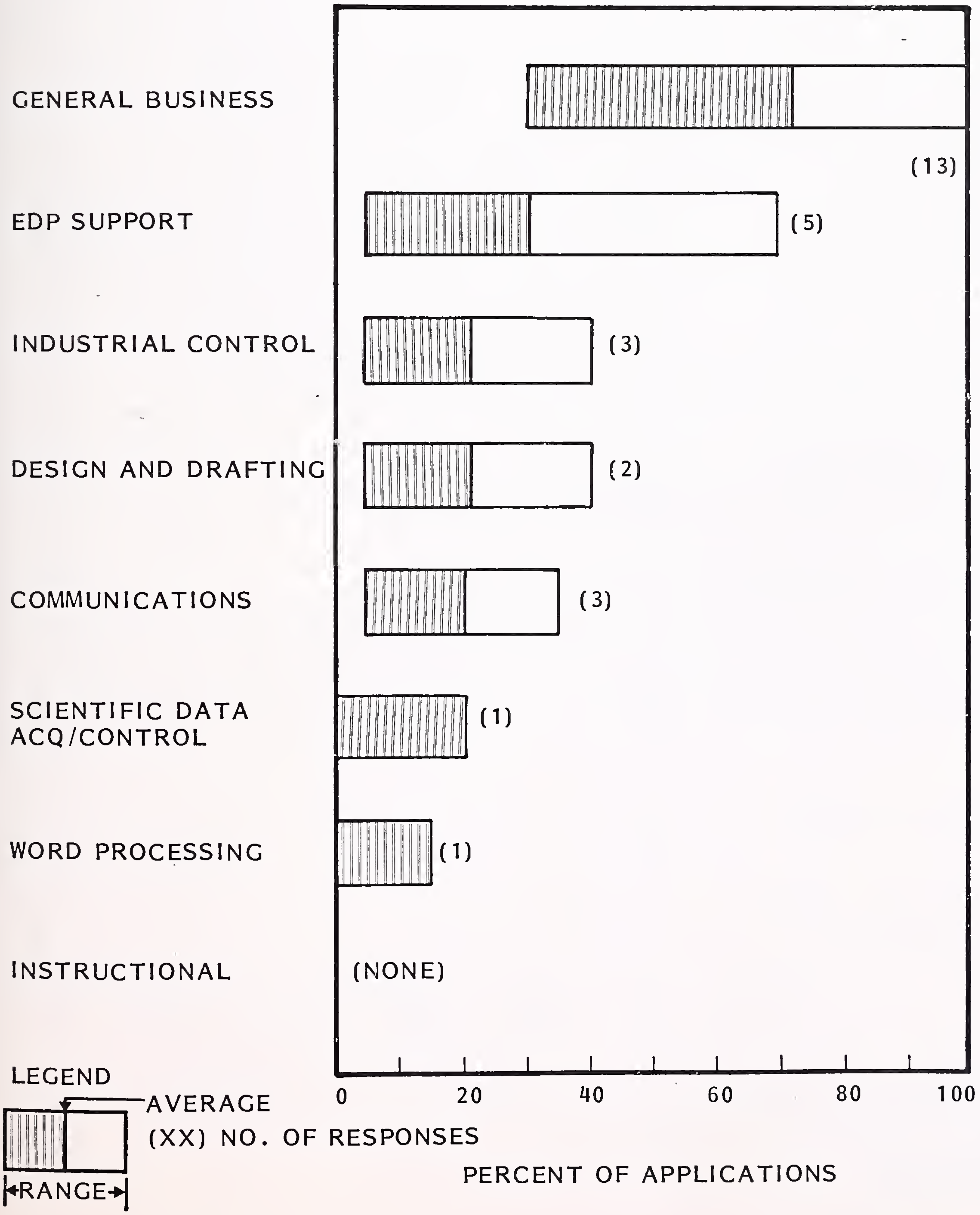
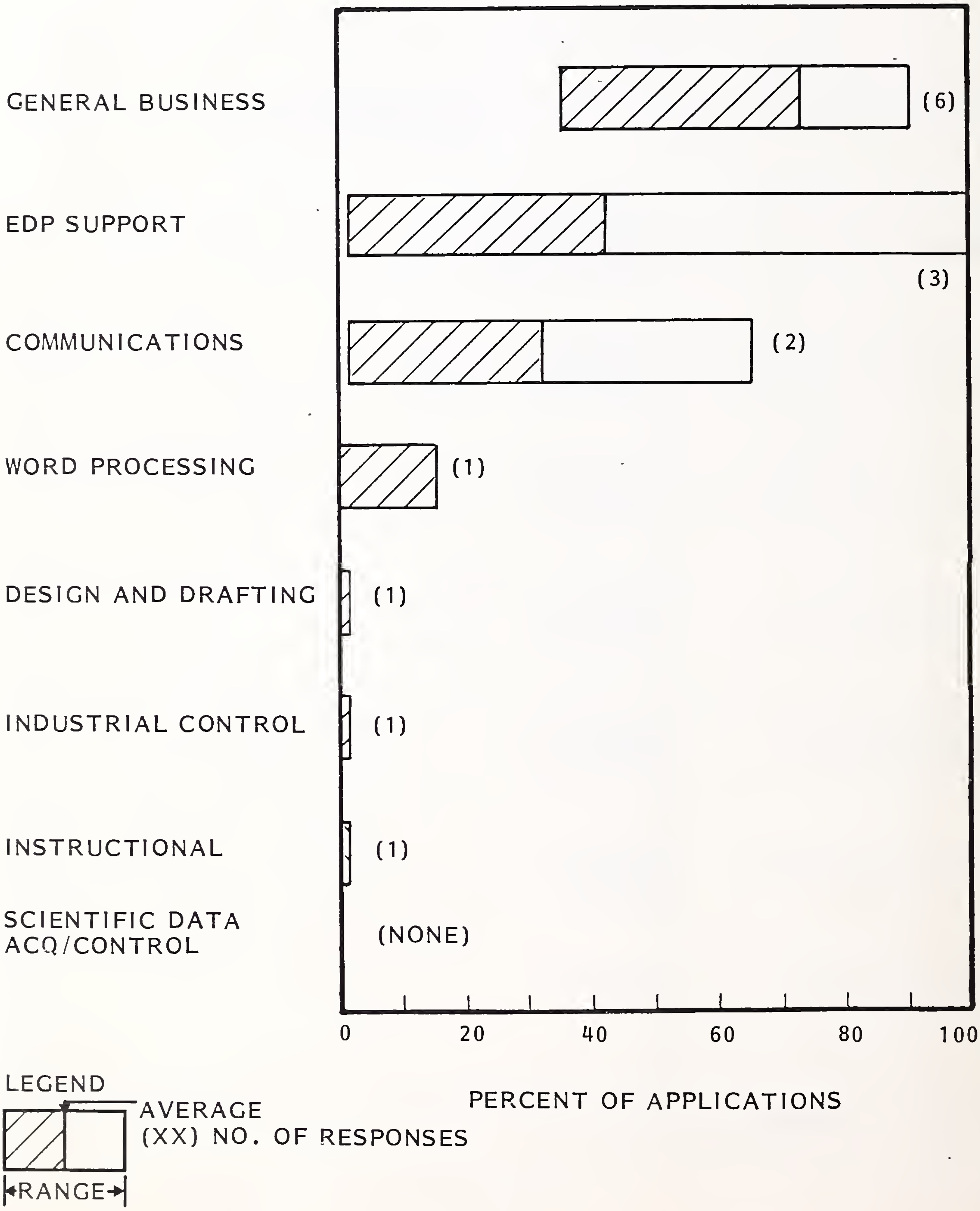


EXHIBIT V-7

PERCENTAGE RANGE AND AVERAGE OF TERMINAL SALES BY APPLICATION FOR VENDORS



E. SALES CLOSURE REQUIREMENTS

- Exhibit V-8 presents the range and average of both number of sales calls and amount of time required to close a sale for minicomputers and terminals.

- There is an obvious correlation between the amount of expenditure and the amount of time/number of calls required to close a sale.

- In the Australian marketplace it appears to take just about twice as long to close a minicomputer/SBC sale as it does a terminal sale.

- Based on the information provided by the vendors, the following average times were obtained:

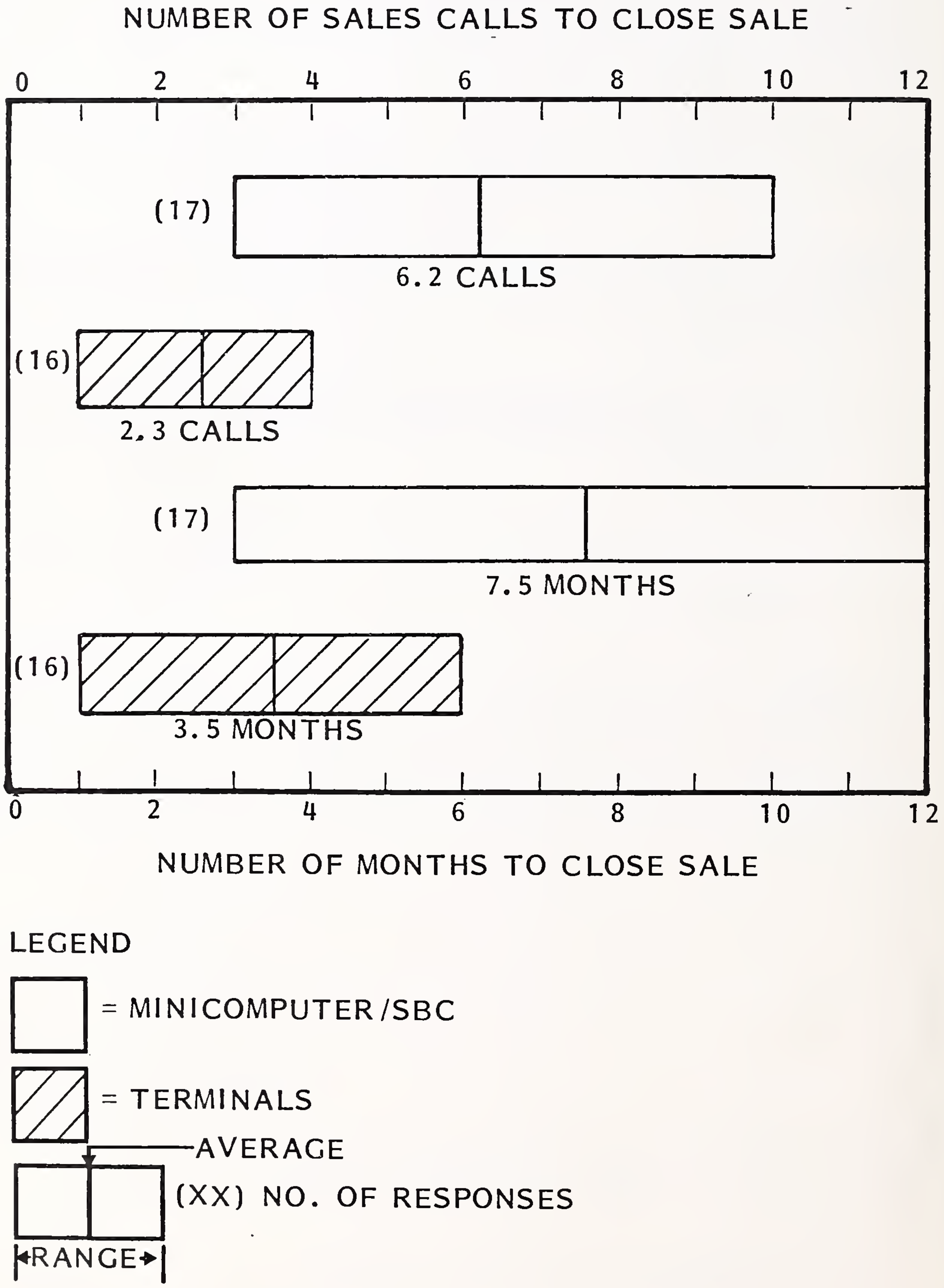
  - For minicomputer/SBC sales it takes an average of 6.2 sales calls over 7.5 months.

  - For terminal sales it takes an average of 2.3 sales calls over 3.5 months.

- Vendors were particularly critical of government procurements on a local, state, and federal level with some procurement cycles from issuance of the tender until contract award lasting up to two years.

EXHIBIT V-8

TIME AND NUMBER OF SALES CALLS REQUIRED TO CLOSE MINICOMPUTER/SBC AND TERMINAL SALE BY VENDORS



F. INDUSTRY SECTOR CONCENTRATION AND SALES FORCE ORGANIZATION

- Exhibit V-9 displays the concentration of the 25 vendors interviewed in the various industrial sectors.

- Seventy-six percent (19 of 25) of the vendors indicated some form of industrial concentration which encompassed at least three complementary industry sectors; e.g., banking, public accountancy, and credit unions.

- Although the majority of the vendors indicated such a complementary concentration, none of the vendors excluded other industry sectors, if an opportunistic situation arose.

- Six of the vendors had no industry sector, but organized strictly along geographic lines with sales offices in each capital city.

- These geographic sales forces handled all potential accounts within that territory.

- Four of the vendors established national task teams to handle major equipment purchases that had a purchasing cycle of at least six months. These dedicated task teams were composed of both sales personnel and technical support personnel and were reassigned to other activities at the completion of such a major competition.

- None of the vendors concentrated on the Federal Government sector. One systems house vendor was candid in his assessment of this market.

    - "The government sector has contracted for little systems work. They are technically naive. Our skills are just more advanced, particularly in data communications."

EXHIBIT V-9

INDUSTRY CONCENTRATION OF VENDORS INTERVIEWED

INDUSTRY CONCENTRATION	PERCENT	NUMBER OF MENTIONS
ALL SECTORS	17%	7
BANKING (INCLUDING CREDIT UNIONS)	14	6
DISTRIBUTION/WHOLESALE	12	5
DISCRETE MANUFACTURING	10	4
INSURANCE	10	4
RETAIL	7	3
LOCAL (CITY AND STATE GOVERNMENT)	7	3
HOSPITAL/MEDICAL	5	2
LEGAL	5	2
OEM	5	2
EDUCATION	2	1
FOOD PROCESSING	2	1
REAL ESTATE	2	1
PUBLIC ACCOUNTANTS	2	1
TOTAL	100%	42

- One vendor had a significant portion of his sales force vertically directed to the legal profession within Sydney and at the end of the first six months of this campaign had successfully sold 18 mini-based word processing systems and was planning a similar sales approach in Melbourne in February 1979.

- Since the total size of this marketplace is small when compared to the intense competition, it is expected that vendors will continue to go after targets of opportunity independent of industrial sector in order to capture any market share.

G. CUSTOMER SUPPORT AND TRAINING

- As in other marketplaces this study reconfirmed the attention that vendors pay to post sales support both as an important sales mechanism necessary to close a sale and strengthen the possibility of future hardware add-ons to the initial sale.

- Exhibit V-10 summarizes the type of support provided by the vendors to their customers.

- Only one of the vendors interviewed provided no training to its customer and his interview comment, "We give them an operator's manual and turn them loose," reflects the lack of maturity in customer support.

- The type of training provided by the more successful vendors was of two general types:

    - Formal classroom instruction on systems operation and procedures that ranged from two to four weeks as a function of subject matter complexity.

    - On-the-job training (OJT) to supplement formal classroom instruction with qualified technical personnel on-site or on-call during the initial installation period.

- All vendors provide maintenance, and the only difference was the method of payment. The majority provided it on an annual contract basis with costs equal to 9-12% of the original purchase price.

- This maintenance covered normal business hours (8 AM to 5 PM, Monday through Friday) with off-hours maintenance provided on a time and materials basis.

EXHIBIT V-10

TYPES OF SUPPORT PROVIDED BY MINICOMPUTER/SBC TERMINAL VENDORS

TYPE OF SUPPORT	PERCENT OF VENDORS PROVIDING SUPPORT	TYPE OF PAYMENT		
		INC. LEASE/ PURCHASE	FIXED PRICE	TIME AND MATERIAL
TRAINING				
FORMAL/CLASSROOM	90%	75%	25%	0
OJT	85%			
MAINTENANCE	100%	80%	20%	(See Note 1)
PROGRAMMING				
APPLICATION	95%	0	55%	45%
COMMUNICATIONS	40%			
SYSTEMS	50%			

NOTE 1: MAINTENANCE REQUIREMENTS FOR NON-BUSINESS HOURS IS AN ADDITIONAL T&M CHARGE.

- The majority of the vendors provided applications programming support. The amount varied as a function of the capabilities of the system.
    - For a minicomputer installation where there was a requirement to modify software provided by the manufacturer or to develop original software based on unique user requirements, it was always provided.
    - Vendors of SBC were reluctant to provide the same level of software support and preferred that the system purchaser work within the constraints of the packaged software.
- As indicated in Exhibit V-10 communications and systems software support were not available to the same degree.
    - This probably reflects the lack of requirements for that type of software in the minicomputer/SBC marketplace rather than the reluctance or inability of the vendors to provide it.
    - This type of support would more likely be required if the minicomputer were interfaced with other computers in a data network configuration.
- Software support capability was not always provided by the hardware vendor.
    - Thirty-Two percent (8 of 25) of the vendors indicated that they used outside programming firms to provide or supplement in-house programming support to their customers.
    - This was arranged as a subcontract relationship with the vendor who had the prime contract responsibility for the software development effort and the installation of the software at the customer installation.

H. SALES FORCE COMPOSITION

- The variability in the approach of the vendors to the marketplace ranged from vertical integration to geographic concentration.

1. SIZE OF SALES FORCE

- Vendors were reluctant to provide complete information in this area with only 12 of the 25 vendors provided information in sufficient detail to permit any meaningful analysis.

- Exhibit V-11 presents a comparison of these twelve vendors in terms of percent of annual sales dedicated to sales staff costs.

- To calculate the percentages used in this exhibit, it was assumed that the average cost of a salesperson was $60,000 per annum which included salary, expenses, commissions, and overhead.

- The cost of sales when computed in this manner ranged from a low of 5% to a high of 38%.

2. SALES FORCE SELECTION AND TRAINING

- The lack of a sufficient number of qualified sales and sales management personnel is a survival issue facing sales executives in the Australian mini-computer/SBC and terminal markets.

- Over half of the sales executives interviewed stated that they were spending an inordinately large amount of their management time recruiting, training, and retraining their sales force.

EXHIBIT V-11

MINICOMPUTER/SBC AND TERMINAL VENDORS' ESTIMATED ANNUAL SALES VS. SIZE OF SALES FORCE

VENDOR NUMBER	ANNUAL SALES ($A MILLION)	NUMBER OF SALESMEN	SALESMAN COSTS/PERCENT OF ANNUAL SALES
1	$ 30.0	35	7%
2	17.5	30	10
3	12.0	11	5
4	10.0	30	18
5	10.0	45	27
6	10.0	25	15
7	8.0	10	8
8	8.0	15	11
9	4.5	12	16
10	1.2	8	38
11	1.0	3	18
12	0.5	2	6

- Representative comments by sales executives interviewed reflect this pressing issue:
  - "Finding qualified sales management personnel is a unique problem in Australia. Most salesmen don't want to do it. This has caused many problems for me."
  - "Salesmen are extremely scarce. Must hire from the competition which drives up the cost of sales."
  - "There is a great deficiency in marketing people in Australia."
  - "We try to find the top salesmen (from competition) and buy them."

3. SALES TRAINING

- The approach of vendor's to the training of sales personnel covered the spectrum of possible training approaches and varied from extensive training to no training.

- Types of training stated were:
  - Formal product classes in Australia and overseas.
  - Formal sales seminars in selling techniques by in-house executives and outside consultants.
  - Self-paced audio visual techniques.
  - Company films.
  - OJT with senior sales personnel.

- Exhibit V-12 provides a tabulation of the various training methods used by the vendors.

- Sales executives commentary on this issue is quite illuminating since it reflects the variability in training approach:

  - "Our approach is sloppy. We hire them, give them a bunch of manuals and shove them out the door."

  - "A bit ad hoc, varies from year to year."

  - One vendor whose firm provides an extensive formalized training program commented on the risk of training. "After we finish training, they go to the competition for $2K more per annum."

- Sales executives indicated that on the average, it requires a salesman seven months to become effective (meet or exceed sales goals) with a range from 3 to 14 months.

4. SALES FORCE SALARIES AND INCENTIVE PROGRAMS

- Only 11 of the companies interviewed provided substantive information in this area, but INPUT believes it to be representative based on the companies that supplied the information.

- Exhibit V-13 summarizes the compensation for these companies.

  - The wide variability in base salaries for entry level sales positions is a function of the minimum qualifications necessary for a starting position with the individual company.

  - Five of the eleven companies were willing to take university graduates with no previous selling experience.

EXHIBIT V-12

TYPES OF SALES TRAINING PROVIDED BY VENDORS

TYPE OF TRAINING	DURATION		PERCENT VENDORS INTERVIEWED	NUMBER OF VENDORS RESPONDING
	AVERAGE	RANGE		
FORMAL/CLASSROOM	4.7wks	1-12wks	28%	7
INFORMAL/OJT	1.8	Unspecified to 4 wks	24	6
NONE	-		16	4
NO RESPONSE	-		32	8

EXHIBIT V-13

VENDOR'S SALES COMPENSATION PROGRAM

COMPANY	ANNUAL BASE SALARY RANGE ($A)	COMMISSION PLAN	CAR ALLOWANCE ($A)	EXPENSE ACCOUNT	OVERSEAS TRIPS-QUOTA CLUB, ETC.
1	$15-20K	x	$ 2,000	x	1 per annum (U.S.)
2	12-25K	x	2,500	x	1 per annum + 1 local
3	13-35K	x	3,000	x	1 per annum (U.S.)
4	19-45K	x	3,600	x	1 per annum + I local
5	12-20K	x	3,000	x	1 per annum (U.S.)
6	15-22K	x	3,000	x	1 per annum
7	10-40K	x	2,800	x	1 per annum
8	12-40K	x	3,200	x	1 per annum Europe
9	25-30K	x	3,500	x	1 per annum (U.S. or Europe)
10	12-30K	x	2,800	x	1 per annum
11	15-35K	No	2,500	x	I local

  - The rest of the vendors preferred at least two years of some type of commercial experience before even considering an individual for employment.

- The high demand for sales personnel in the computer related business has driven salaries up and at the same time has created a high turnover rate.

- The turnover rates for one vendor were 35% in 1978 and all vendors indicated a high level of "pirating" of salesmen within the industry.

- Based on this study, a compensation program for a good salesman should contain the following elements:

  - Starting salary of a least $15,000 per annum with experienced salesmen (five or more years experience) requiring at least $20,000.

  - Commission plan bases of percentage of sales that would permit him to earn at least 100% of his base salary.

  - Car allowance of $3000.

  - Expense account.

  - Quota club or other commission mechanism that would permit at least one overseas trip per year for salesman and wife.

- The second element of a compensation program would have to include a sales campaign on the individual to convince him that the product that he was going to take into the marketplace was capable of being sold.

- With the wide range of products available for a salesman to market, the well qualified individual can be very selective in choosing a firm with which to affiliate.

5. HIGH COST OF SALES/SALESMAN PRODUCTIVITY

- Only two of the vendors had seriously considered the problem of reducing the cost of sales.

- The reaction of six of the companies on this issue was simply to terminate low producers.

- While this solution does have some merit, it does create the problem of finding and training a replacement which may be a more costly process than trying to motivate the low producer.

- One vendor was reducing his sales cost by holding more one day seminars, doing less cold calling and more mailing with phone call follow-ups.

- The second vendor was increasing his direct mailing and reducing the amount of travel.

- Although all the sales executives interviewed recognized this as an important sales management issue, little constructive action appears to be occurring.

I. ADVERTISING ECONOMICS

- Ninety-two percent of the vendors (23-25) used some form of advertising to place their products before potential buyers.

- Exhibit V-14 presents the range and average of vendors' advertising budgets by the various media used. While not queried on advertising budgets, seven of the vendors did provide information about their expenditures.

    - This ranged from $A20,000 to $A200,000, with an average expenditure of $A73,000. The firm with the largest expenditure directed over 50% of their advertising toward small business establishments to attract managing directors to their SBC products.

    - The $A20,000 expenditure was by a small SBC vendor (annual turnover of less than $A1M), and was directed toward "buying editorial comments" in the Australian press.

- Four of the vendors indicated that they were provided with "free" institutional advertising in Australia general and DP magazines by the overseas corporate offices.

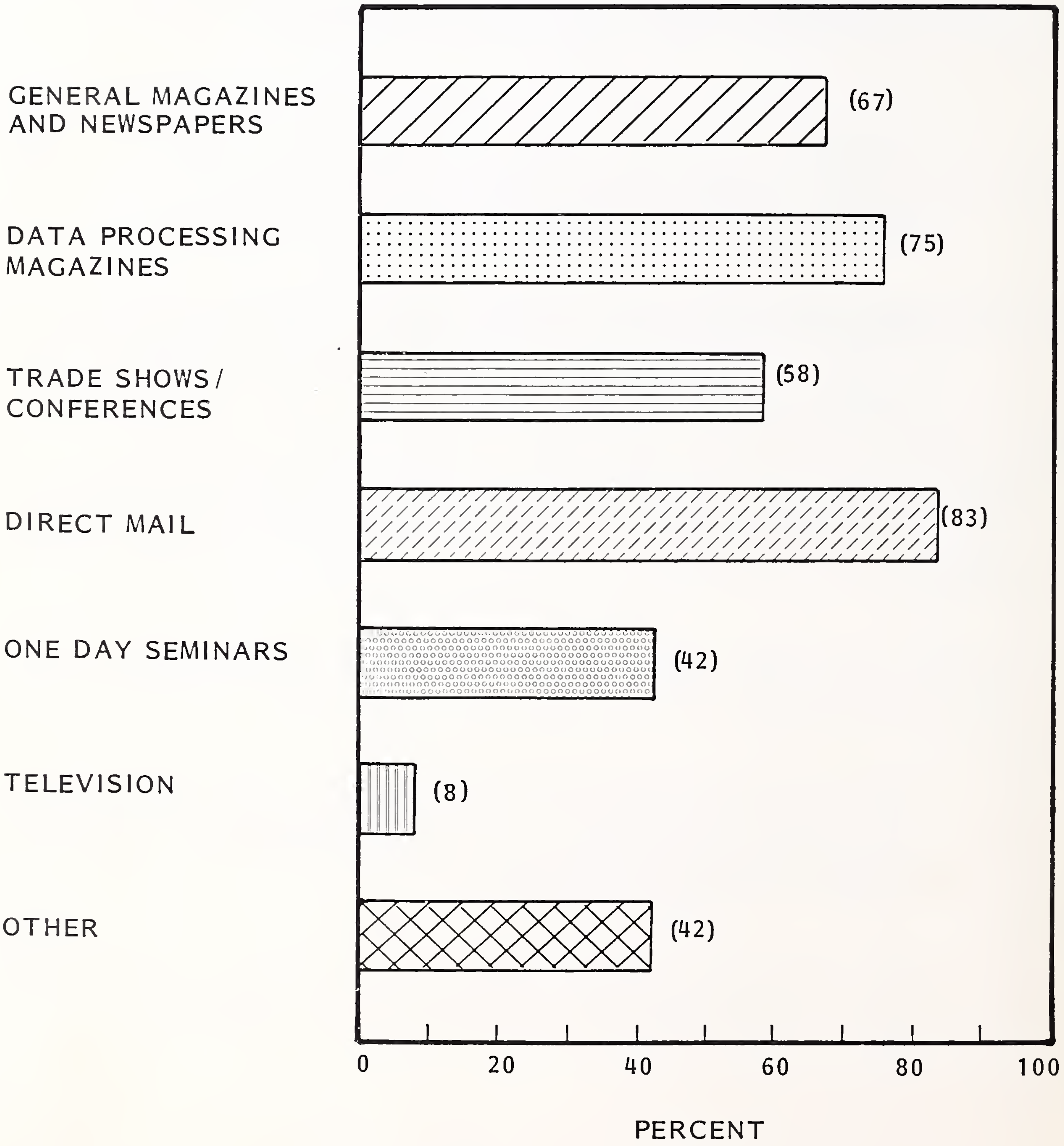
- Exhibit V-15 provides a distribution of the various advertising forms used by vendors interviewed.

    - Direct mail was the most popular form employed and it was directed at introducing new products or announcing significant changes about the capabilities offered by the vendor.

    - Only one vendor had attempted to use television as an advertising media and indicated that the cost did not justify a further use of it.

EXHIBIT V-14

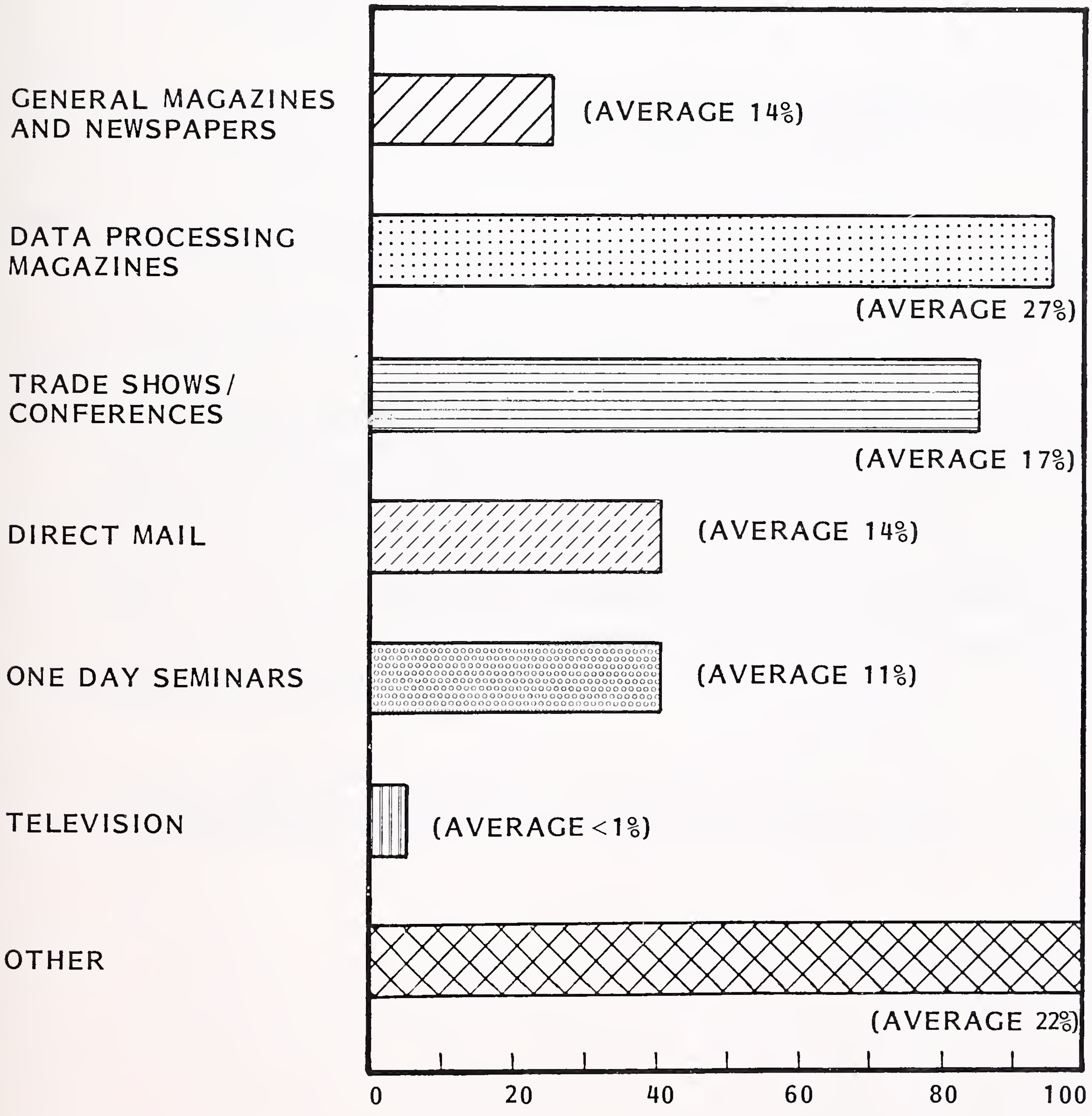
ADVERTISING BUDGET DISTRIBUTION VS. ADVERTISING MEDIA OF VENDORS



LEGEND: (XX)NO. OF RESPONSES

EXHIBIT V-15

RELATIVE USE OF ADVERTISING MEDIA BY VENDORS



PERCENT OF ADVERTISING BUDGET

- One of the main purposes indicated by vendors for advertising in DP magazines was to establish potential sales contacts.

  - A standard segment of this advertising includes a mail-in card from which sales contacts could be initiated and mailing lists could be expanded for direct mail product announcements.

  - These returned cards were followed up by a phone call from a vendor salesman in an attempt to establish a sales presentation.

- Trade shows/conferences were employed to introduce potential buyers to specific products. These took two forms:

  - The vendor established a specific conference and was responsible for all arrangements.

  - Vendors "piggy-backed" on an industry specific conference and were placed on the agenda as official participants in the conference or set-up demonstration booths in association with the conferences.

- It appears that vendors are directing their advertising campaigns to two complementary but distinct advertising populations.

  - The EDP manager who is interested in new or expanded hardware capabilities.

  - The first time user which is directed at the general management level of a company.

J. VENDORS' PERCEPTIONS OF MAJOR COMPETITORS

- Exhibit V-16 presents the combined rating of all vendors interviewed for their perceptions of the leading vendors of minicomputer/SBC and terminal marketplace in Australia.

- As expected, DEC and IBM are rated as the major forces to be reckoned with in the marketplace.

- This information correlates with the information provided by the users in terms of their perceptions of the major vendors in Australia.

- It is significant to note that DEC has been active in the Australian marketplace for over 10 years and has a well established and respected sales and maintenance support force in place in all the capital cities of Australia.

- DEC is not only very active in business applications, but is probably the largest supplier of industrial control hardware to the process manufacturing and mining sectors within the community of EDP suppliers in Australia.

- Based on available information, it appears that IBM has directed the majority of their Australian marketing activities to large and medium scale users as opposed to the small business segment.

- However, with IBM's expanded small business computer product line, it is expected that they will increase their marketing of these products on a global basis.

EXHIBIT V-16

PERCEPTION OF RELATIVE IMPORTANCE OF USER SELECTION CRITERIA BY USERS

CRITERIA	WEIGHTED SCORE
VENDOR IMAGE/REPUTATION IN FIELD	4.4
PRODUCT RELIABILITY	4.1
HARDWARE MAINTENANCE CAPABILITY	3.9
SOFTWARE SUPPORT CAPABILITY	3.9
PRICE/PERFORMANCE	3.9
SINGLE VENDOR FOR ALL SYSTEM PURCHASES	3.0
FIELD UPGRADABILITY	2.7
VENDOR SALESMAN CONTACTS	2.6
FINANCIAL ARRANGEMENTS	2.0
LEGEND 5 = HIGH 1 = LOW	

K. VENDORS' PERCEPTIONS OF USER REQUIREMENTS

- Exhibit V-17 presents a compilation of the relative importance of the various user selection criteria as perceived by the vendor interviewed.

- The only major difference between the ratings of these selection criteria by the two groups was that vendors rated "vendor image reputation in the field" as most important while for the users it was rated as sixth most important among the nine variables.

- Somewhat surprising were the low values the vendors assigned "vendor sales contacts" with a rank as seven out of the nine variables.

- There is, however, marked consistency within both groups when rating these variables for "product reliability, hardware maintenance capability and software capability."

- Since the current level of hardware technology almost eliminates hardware reliability as a product differentiator, the ability of the vendors to provide hardware maintenance and software support capability are the two selection criteria that will differentiate competitors.

EXHIBIT V-17

PERCEPTION OF MAJOR COMPETITORS IN MINICOMPUTER/SBC/TERMINAL MARKETPLACES BY VENDORS INTERVIEWED

VENDOR	MENTIONS			WEIGHTED SCORE*
	1ST	2ND	3RD	
DEC	7	4	1	27
IBM	7	3	0	26
DATA-GENERAL	2	1	2	10
AWA	0	3	2	8
NCR	0	2	2	6
DATRONICS	0	2	1	5
MEMOREX	0	2	0	4
RAYTHEON	1	0	0	3
BURROUGHS	0	1	1	3
ICL	0	1	1	3
COURIER	1	0	0	3
WANG	0	1	0	2
HEWLETT-PACKARD	0	0	2	2
INTERDATA	0	0	2	2
CDC	0	0	1	1
SIGMA	0	0	1	1

*WEIGHTED SCORES WERE DERIVED BY ASSIGNING 3 pts. for 1st; 2 pts. for 2nd; and 1 pt. for 3rd.

L. UNIQUE MARKETING PROBLEMS IN AUSTRALIA

- Vendors indicated three types of unique problems in marketing their products. These were:
  - Geography. The great distances between capital cities and associated high interstate travel costs were significant cost contributors to sales activities and post sale support and maintenance. Representative comments by sales management personnel were:
    - "Geographic areas put a different aspect on marketing."
    - "One bloody big item is the cost of travel in Australia."
    - "Maintenance due to geography is a real problem. Country people have to pay more and are accustomed to flying equipment to capital cities to be repaired."
  - Data Communications. The current Australia telephone system received the strongest comments by the vendors and appears to be a significant cost inhibitor in developing large interstate or national data networks. Representative comments are:
    - "Telecom is a monopoly in Australia, costs are higher, line protocols are different from U.S."
    - "Communication costs are three to five times higher than they have to be."
  - However, one vendor perceived the high cost of communications as a positive factor in the sale of minicomputer/SBC and commented:

  - "Communication costs are expensive. This helps mini suppliers because they (potential buyers) can't afford the cost (of data communications) and are going toward decentralized systems. It hurts companies who are trying to sell terminals and other communications equipment."

- User Sophistication. Five of the vendors interviewed were negative about management attitudes and technical sophistication of EDP personnel to whom they were selling. However, this is in contradistinction with INPUT's impression of most EDP managers interviewed for this research program. Representative comments by these sales personnel were:

  - "Average buyer is very skeptical. They think that most salesmen are con artists and are always looking for a deal."

  - "Australian businesmen seem to say 'It's not coming out of my pocket so why should I worry about saving money for my employer'." (In reference to cost savings resulting from minicomputer purchase.)

  - "Most EDP personnel I sell to are naive. The only thing that they understand is the hardware."

M. IMPACT OF GOVERNMENT ACTIONS ON VENDORS

- Forty-eight percent (12 of 25) of the vendors believed that the Australian government was a negative contributor in their sales efforts.

- The most common problems discussed were import tariffs, unresponsive bureaucracy to technological changes, communications regulations, and the Trade Practice Act.

- Commentary by the vendors is illuminating.

  - "Tariffs are stupid - government is trying to protect an industry which doesn't exist."

  - "Bureaucracy is the problem. It takes two years for them to decide anything and their technology decisions are bad."

  - "Telecom is a real problem. The delays (in installing data interface equipment) are unbelievable."

  - "Government subsidizes local terminal manufacturing by 25% which makes it difficult to sell some imported terminals."

  - "Government is concerned about people displacement by computers. They don't understand EDP and will pass some silly law."

  - "Government procurements are so slow. Some have taken over two years (after proposal submission). Things here are very tedious."

N. IMPACT OF TECHNOLOGY ON MINICOMPUTER/SBC/TERMINAL MARKETS

- The continued development of very large scale integrated (VLSI) circuits over the next decade will continue to drive down the cost of memory and logic circuits.

  - The quadrupling of memory density on a single chip of silicon every two to three years will continue into the next decade although the semiconductor industry will have to make the transition from traditional photolithographic manufacturing techniques to electron beam methods.

- As the trend toward greater densities of memory continues to drive down the cost per bit, the economic incentives for more efficient programming will be reduced. This will facilitate the use of higher level languages, increase the use of firmware within equipment architecture and continue to make these systems transparent to the end user.

- Traditional semiconductor component companies will accelerate their forward integration strategies toward EDP markets, leveraging their technological strengths in entering high volume/low average selling price types of system markets.

  - Texas Instruments, which is at the forefront in the commercial development of bubble memories and charge coupled devices (CCD), must be expected to use these products to further their longer term goals in the distributed data processing market.

- Microprocessors, which first emerged in 1971, have spawned complete families of four and eight bit microcomputer products used in consumer, industrial and computer related applications.

- In 1978, the microelectronics industry achieved higher levels of microcomputer system integration on a chip of silicon with the introduction of 16 bit microcomputer systems. These will become increasingly more powerful over the next several years. These machines will be targeted for major applications usage in computer and telecommunications related applications. Furthermore, as a function of speed improvements in MIS technology, these 16 bit microcomputers may significantly change the traditional architecture and methods of manufacture of minicomputer based products.

APPENDIX A: DEFINITIONS

APPENDIX A: DEFINITIONS

- A Small Business Computer, for the purpose of this study, is a system which is built around a Central Processing Unit (CPU), and which has the ability of utilizing at least 20M bytes of disk capacity, provides multiple CRT work stations, and offers business-oriented system software support.

- A Small Business Computer Manufacturer builds its system around a proprietary CPU and provides systems software. It may make or buy peripheral equipment and semiconductor devices. Distribution to the end user may be through its company field sales offices, a network of distributors, or both.

- Software Products are systems and applications packages which are sold to computer users by equipment manufacturers, independent vendors, and others. They also include fees for work performed by the vendor to implement a package at the user's site.

- A Systems House integrates hardware and software into a total turnkey system to satisfy the data processing requirements of the end user. He may also develop system software products for license to end users.

- A Distributor purchases the small business computer on an OEM basis from the manufacturer and markets it to the end user. It may or may not provide a turnkey system.

- Peripherals include all input, output, and storage devices, other than main memory, which are locally connected to the main processor and are not generally included in other categories, such as terminals.

- A Turnkey System is composed of hardware and software integrated into a total system designed to completely fulfill the processing requirements of a single application.

- An End User may buy a system from the hardware supplier(s) and do his own programming, interfacing and installation. Alternately, he may buy a turnkey system from a systems house or hardware integrator.

- A Hardware Integrator develops system interface electronics and controllers for the CPU, sensors, peripherals and all other ancillary hardware components. He may also develop control system software in addition to installing the entire system at the end user site.

- A Microcomputer combines all of the CPU, memory and peripheral functions of a computer on a chip of silicon. It may be sold in an integrated circuit package or with the addition of more memory and peripheral circuits packaged on a board or in a console.

- A Minicomputer is usually a 12 or 16 bit computer which is provided with limited application software and support and represents a portion of a complete large system.

- Distributed Data Processing (DDP) is the deployment of programmable intelligence in order to perform data processing functions where they can be accomplished most effectively, through the electronic interconnection of computers and terminals, arranged in a telecommunications network adapted to the user's characteristics.

APPENDIX B: LISTING OF USERS INTERVIEWED

APPENDIX B: LISTING OF USERS INTERVIEWED

- The following is a list of users by industry specialty code interviewed for this study:

  - Banking & Finance

    - AGC Ltd.
    - ANZ Bank
    - Bank of New South Wales
    - Beneficial Finance
    - Capel Court Corporation
    - Charge Card Services Ltd.
    - Commonwealth Banking Corporation
    - Custom Credit Corporation
    - IDAPS
    - National Bank of Australia Ltd.
    - Western Australia Savings & Building Society

  - Government

    - Australian Broadcasting Commission
    - Brisbane City Council
    - Builders Licensing Board

- Business & Consumers Affairs, Department of
- Finance Department (ACT)
- Health Department (ACT)
- Health Insurance Commission
- Hospital Department of South Australia
- Main Roads Department
- Mandata Program Office
- Motor Transport Department
- National Library
- New South Wales Police Department
- Public Service Board
- Queensland State Government Computer Center
- Social Security Department
- South Australia Goverment ADP Center
- Veteran's Affairs Department
- Western Australia Computing Center

- Insurance

  - AMP Society
  - Aetna Life
  - Australian Eagle Insurance Co. Ltd.
  - Commercial Union Assurance Co.
  - Edward Lumley Australian Pty. Ltd.
  - Federation Insurance Ltd.
  - Greater Pacific Life
  - H.B.A.
  - MLC Assurance Co. Ltd.
  - NMLA Ltd.
  - NRMA Pty. Ltd.
  - Norwich Union Life Insurance
  - RACV Data Processing Pty. Ltd.
  - Royal Insurance of Australia Pty.
  - South British United Insurance Group Ltd.

- Manufacturing, Discrete
  - Atco Structures Pty. Ltd.
  - AWA Ltd.
  - Australian Paper Mfg. Ltd.
  - Chamberlain John Deere
  - Chrysler Australia Ltd.
  - Clyde Industries Ltd.
  - L.M. Ericson
  - Ford Motor Co.
  - International Harvester
  - Leyland Motor Corp. Ltd.

- Manufacturing, Process
  - AMOCO Australia Pty. Ltd.
  - AMPOL Petroleum Ltd.
  - Alcoa of Australia (Western Australia)
  - Alcoa of Australia (Victoria)
  - AMSCOL
  - Applied Mills Ltd.
  - Arnott Mills & Ware Pty. Ltd.
  - Australian Fertilizer Ltd.
  - B.P. Australia Ltd.
  - Balfour Wauchope
  - Bristle Ltd.
  - C.I.G. Pty. Ltd.
  - Caltex
  - Comalco Ltd.
  - Swann Brewery Ltd.
  - Tooth & Co.

- Retail

  - Australia Proprietary Ltd.
  - Australian Safeway Stores
  - Avon Products
  - Boan's Ltd.
  - Fletcher Jones Ltd.
  - Franklin's Stores
  - John Martin & Co.
  - McDonnell & East Ltd.
  - Norman Ross Ltd.
  - W. C. Penfold Holdings Ltd.
  - WESFARMAS
  - Woolworth's Ltd.

- Transportation

  - Ansett Airlines
  - Australian National Railways
  - Brambles MPS
  - Confidential
  - IPEC
  - OCAL
  - Qantas Airways Ltd.
  - TNT Management Pty. Ltd.

- Utilities

  - A.G.L. Co.
  - N.Q. Electricity Board
  - Electricity Trust of S.A.
  - Gas & Fuel Corporation
  - S.E.C. of Victoria
  - South Australia Gas Co.

- Wholesale/Distribution
    - Arnott's Biscuits Pty. Ltd.
    - Atkins Caryle Ltd.
    - Australian Lighting Pty. Ltd.
    - Australian Pharmaceutical Industries
    - Breville
    - Confidential
    - EMI Records Australia
    - Egg Marketing Board
    - Elder Smith Goldsborough Mortgage Ltd.
    - LNC Industries Ltd.
    - Unilever Australia Pty. Ltd.
- Miscellaneous
    - American Express International, Inc.
    - Australian Mineral Development Lab.
    - Brisbane Gas Co. Ltd.
    - Hammersley Iron Pty. Ltd.
    - L. J. Hooker Pty. Ltd.
    - Latrobe University
    - NSW Institute of Technology

APPENDIX C: LISTING OF VENDORS INTERVIEWED

APPENDIX C: LIST OF VENDORS INTERVIEWED

- AWA Data Processing Systems
- Advanced Technology Ltd.
- Burroughs Ltd.
- Computer Sciences of Australia
- Computica Pty. Ltd.
- Data 100 Pty. Ltd.
- Australian Datronics Ltd.
- Digital Equipment of Australia (DEC)
- FACOM Australia Ltd.
- Genasys Pty. Ltd.
- Hewlett-Packard Australia Pty. Ltd.
- ICL (Australia) Pty. Ltd.
- Kingsway Computers Ltd.
- Logica Pty. Ltd.
- Memorex Pty. Ltd.
- Network Computer Services
- Nixdorf Computer Pty. Ltd.
- Olivetti Australia Pty. Ltd.
- Plessey Data Systems
- Raytheon International Data Systems
- Saztec Pty. Ltd.
- Sigma Data Corporation (A'Asia) Ltd.
- Sperry Univac - Division of Sperry Rand Australia Ltd.
- Texas Instruments
- Wang Computers Pty. Ltd.

APPENDIX D: MINICOMPUTER/SBC AND TERMINAL INSTALLATIONS

EXHIBIT D-1

DISTRIBUTION OF MINICOMPUTERS/SBC AMONG USERS INTERVIEWED

VENDOR	NUMBER OF USERS	NUMBER OF UNITS INSTALLED
DEC	25	102
IBM	23	44
HEWLETT-PACKARD	10	30
NCR	6	60
HONEYWELL	7	36
ICL	9	31
DATA GENERAL	4	9
WANG	4	5
GCS	3	4
CDC	3	4
BURROUGHS	5	6
AWA	3	6
GCS	3	4
MOHAWK	3	54
INTERDATA	4	15
DATAPOINT	3	8
VARIAN	3	2
OLIVETTI	2	7
CMA	2	2
NIXDORF	2	6
INFOREX	2	4
PHILIPS	1	10
GENERAL AUTOMATION	1	15
STC	1	15
SIGMA	1	8
QANTEL	1	1
LYTTON	1	4
MODCOMP	1	4
NORAD	1	1
TEKTRONIX	1	1
CMC	1	1
JACQUARD	1	1
NONE	25	–
TOTAL	162	500

EXHIBIT D-2

TERMINAL VENDOR BY NUMBER OF USERS INTERVIEWED

VENDOR	NUMBER OF USERS	PERCENT
IBM	70	36.0%
DEC	12	6.0
SAZTEC (GENESIS)	11	5.6
ICL	11	5.6
AWA	8	4.0
BURROUGHS	8	4.0
MEMOREX	8	4.0
NCR	7	3.5
I.E.	6	3.0
UNIVAC	6	3.0
RAYTHEON	6	3.0
OLIVETTI	5	2.5
CDC	5	2.5
PLESSEY	4	2.0
ITT	4	2.0
SINGER	2	1.0
DATAPOINT	2	1.0
TELERAY	2	1.0
HIS	2	1.0
SANDERS	2	LESS THAN 1%
T.I.	2	
MICRODATA	1	
TEKTRONIX	1	
SORSE	1	
TALLY	1	
GCS	1	
NORAND	1	
MSI	1	
DATA 100	1	
STC	1	
LSI	1	
TRANSDATA	1	
FACOM	1	
TOTAL	195	-

EXHIBIT D-3

NUMBER OF TERMINAL UNITS INSTALLED AMONG USERS INTERVIEWED

VENDOR	NUMBER OF TERMINAL UNITS	PERCENT
IBM	2,080	23.2%
RAYTHEON	1,550	17.3
I.E.	1,469	16.5
MEMOREX	709	7.9
AWA	586	6.5
DEC	351	3.9
CDC	324	3.6
ICL	229	2.5
OLIVETTI	215	2.4
UNIVAC	191	2.1
SANDERS	164	1.8
NCR	152	1.7
LSI	150	1.6
SAZTEC (GENESIS)	127	1.4
ITT	87	LESS THAN 1%
BURROUGHS	86	
MSI	80	
TEXAS INSTRUMENTS	72	
TELERAY	65	
DATAPOINT	60	
STC	50	
PLESSEY	26	
MICRODATA	18	
SINGER	17	
GCS	16	
HIS	10	
NORAND	6	
TRANSDATA	5	
TEKTRONIX	5	
DATA 100	4	
SORSE	3	
FACOM	2	
TALLY	2	
TOTAL	8,911	

APPENDIX E: USER QUESTIONNAIRES

CATALOG NO. Y A U S ☐ ☐ ☐

USER QUESTIONNAIRE

GENERAL INFORMATION

Primary Business: ____________________

Annual Sales: ____________________

Total No. of Employees: ____________________

No. of EDP Employees: ____________________

EDP BUDGET

1. What is your total annual EDP budget?

1978 - $ ____________ or b) ____________% (of sales)

1979 - $ ____________ or b) ____________% (of sales)

2. At what annual rate do you expect your budget to increase over the next five years?

____________%

3. What will be the primary reasons for your budget increase?

____

____

____

4. What percent of your budget is spent for:

Mainframes ____________%

Peripherals ____________%

CATALOG NO. Y A U S ☐ ☐ ☐

INSTALLED AND PLANNED HARDWARE

1. What major computers do you have installed? (Equivalent of a 370/135 or larger)

	Manufacturer	Model Number	Quantity	When Installed
a)				
b)				
c)				

2. Do you plan a major upgrade in the next five years?

☐ YES ☐ NO When________ Type ________

Why? ________________________

____

3. What minicomputers do you have installed?

	Manufacturer	Model Number	Quantity	When Installed
a)				
b)				
c)				

d) ☐ NONE

e) Application(s)________________________
(include Word Processing)

4. Do you plan to purchase minicomputers in the next five years?

☐ YES ☐ NO When________ Type________

a) Application________________________

____
(include Word Processing)

INF

4. b) Addition ☐ Replacement ☐

c) Will you purchase ☐ Lease, or ☐ Rent ☐

d) Will minicomputer be

☐ standalone ☐ tied to major computer

5. What terminals do you have installed?

a) ________________ ________________ ________________ ________________

b) ________________ ________________ ________________ ________________

c) ________________ ________________ ________________ ________________

d) ________________ ________________ ________________ ________________

e) ☐ None

f) Application(s)____

6. Do you plan to purchase terminals in the next five years?

☐ Yes ☐ No When____________ Type______________

a) Application(s)____

____

b) Addition ☐ Replacement ☐

c) Will you purchase ☐ lease, or ☐ rent ☐

CATALOG NO. Y A U S ☐ ☐ ☐

7. Please rate the following factors as to their degree of importance in selecting a hardware vendor (5 = high, 1 = low), and rank "1"s:

Factor	Rate	Rank is	Comment
a) Price/Performance			
b) Hardware Maintenance Capability of Vendor			
c) Software Support Capability			
d) Single vendor for all system purchases (CPU and Peripherals)			
e) Vendor Image/ Viability/Reputation in field			
f) Product Reliability			
g) Vendor Salesman Contacts			
h) Financial Arrangements			
i) Field Upgradability			
j) Other (describe)			

CATALOG NO. Y A U S ☐ ☐ ☐

VENDOR SELECTION

1. Which of the following methods is used for selecting a hardware vendor?

☐ Competitive Bidding

☐ Sales Presentation

☐ Referrals

☐ Consultants Recommendations

☐ Overseas Corporate Directive

☐ Other (describe)____________________________________

____

2. Who was involved in the final decision? (check all that apply)

☐ EDP Manager and Computer Planning Department

☐ Chief Accountant/Finance Director

☐ Company Secretary/Administration Manager

☐ General Manager/Managing Director

☐ Committee Decision

☐ Board of Directors

☐ Other (describe)____________________________________

____

CATALOG NO. Y A U S ☐ ☐ ☐

VENDOR IDENTIFICATION

1. Have you been called on by any small business computer/minicomputer vendors in the last year?

☐ Yes ☐ No

2. Do you recall the names of the vendors? Please rate their presentation.

Name Product(s) Rating

a) ______________________________ ____________

b) ______________________________ ____________

c) ______________________________ ____________

d) ______________________________ ____________

e) ______________________________ ____________

f) ☐ Don't remember

Comments ______________________________

____

____

3. Have you been called on by any terminal vendors in the last year?

☐ Yes ☐ No

4. Do you recall the names of the vendors? Please rate their presentations.

Name Product(s) Rating

a) ______________________________ ____________

b) ______________________________ ____________

c) ______________________________ ____________

d) ______________________________ ____________

e) ______________________________ ____________

f) ☐ Don't remember

5. Who would you say are the leading vendors of computer products in Austral

a) ____________________

b) ____________________

c) ____________________

CATALOG NO. Y A U S ☐ ☐ ☐

VENDOR INFORMATION

1. What sources of information do you use to locate and evaluate minicomputer and terminal vendors?

☐ Magazines/Newspaper stories

☐ Mailed Advertisements

☐ Industry Reports

☐ Trade Shows

☐ One Day Seminars

☐ Television

☐ Other (describe)________________________________

____

2. Which three General and three DP magazines do you consider best for you concerning general or product information, industry announcements, or providing useful information through advertisements?

a)______________________ a)______________________

b)______________________ b)______________________

c)______________________ c)______________________

APPENDIX F: VENDOR QUESTIONNAIRES

CATALOG NO. Y A U S ☐ ☐ ☐

VENDOR QUESTIONNAIRE

GENERAL INFORMATION

Company Type: ____________________

Annual Sales: ____________________

No. of Employees: ____________________

When Started in Australia: ____________________

1. Which of the following computer products do you market?

	Estimate of		
	% 77/78 Sales	% 80 Sales	% 83 Sales
☐ Large Mainframes	________	________	________
☐ Minicomputers	________	________	________
☐ Small Business Computers	________	________	________
☐ Terminals	________	________	________

PRODUCT LINE - MINICOMPUTERS

1. What types of small business computers and/or minicomputer systems do you market in Australia?

Manufacturer	Model Number	1977 Sales	1978 Sales
________	________	________	________
________	________	________	________
________	________	________	________
________	________	________	________

2. What is the average sale price for the systems you market?

$ ________________ Add ons: $ ____________________

3. At what annual rate do you expect your sales to increase over the next five years?

__________________%

4. How was your sales divided in 1977 and 1978 by mode of purchase?

	1977	1978
Purchase	_____	_____
Lease/Purchase	_____	_____
Lease	_____	_____
Rent	_____	_____
	100%	100%

5. What percent of minicomputers sold were tied to an existing in-house computer?

________________________%

6. Do you expect this to change over the next five years?

Yes ☐ No ☐

Why? ____

____

____

7. How were your sales divided among the following applications?

	1977	1978
General Business	______	______
Communications	______	______
Design/Drafting	______	______
EDP Support	______	______
Industrial Control	______	______
Instructional	______	______
Scientific Data Acq/Control	______	______
Word Processing	______	______
	100%	100%

Do you expect this distribution to change over the next five years?

Yes ☐ No ☐

Why? ______________________________

____

8. What are the three top industries you concentrate your sales efforts on?

1)______________________

2)______________________

3)______________________

CATALOG NO. Y A U S ☐ ☐ ☐

PRODUCT LINE - TERMINALS

1. What types of terminals do you market in Australia?

Manufacturer	Model Number	1977 Sales	1978 Sales

2. What is the average sale price for the terminals you market?

$__________________

3. At what annual rate do you expect your sales to increase over the next five years?

__________________%

4. How was your sales divided in 1977 and 1979 by mode of purchase?

	1977	1978
Purchase		
Lease/Purchase		
Lease		
Rent		
	100%	100%

CATALOG NO. Y A U S ☐ ☐ ☐

5. How were your sales divided among the following applications?

	1977	1978
General Business	_______	_______
Communications	_______	_______
Design/Drafting	_______	_______
EDP Support	_______	_______
Industrial Control	_______	_______
Instructional	_______	_______
Scientific Data Acq/Control	_______	_______
Word Processing	_______	_______
	100%	100%

CUSTOMER SUPPORT AND TRAINING

1. What type of training is provided to your customers?

☐ Formal Classroom _______ No. of Training Hours

☐ On-the-Job Training _______ No. of Training Hours

2. Please provide a list of the training classes offered.

____

____

____

____

____

3. How does the customer pay for the training?

☐ Included in Lease/Purchase

☐ Fixed Price Addition

☐ Time and Material

4. How does the customer pay for the maintenance?

☐ Percent of Lease/Purchase

☐ Fixed Price Addition

☐ Time and Material

5. Which of the following types of programming support do you provide to your customers?

☐ Applications

☐ Systems

☐ Communications

6. How does the customer pay for programming services?

☐ Fixed Price

☐ Time and Material

7. Do you use other firms to provide programming support to your customers?

☐ Yes ☐ No

8. What firms do you use?

____________________ ____________________

____________________ ____________________

MARKETING/SALES ISSUES

1. How is your sales force oriented?

   ☐ Industry-Oriented

   ☐ Geographic-Oriented

   ☐ Distributor

   ☐ System House

2. Why did you select this method of organization?

   ____

   ____

   ____

   ____

3. What is the size of your sales force?

   ____

4. On the average, how many sales calls are required to close a sale?

   ____

5. What is the average time from initial sale call to close a sale?

   ____

6. What organizations/department within a company do you sell to within a company?

Initial Calls ____________________

____

____

____

Follow-up Calls ____________________

____

____

____

7. Do you provide any type of discounts to your customers?

☐ Yes ☐ No

Please describe ____

____

____

8. Are there any unique marketing problems in Australia?

☐ Yes ☐ No

Please describe ____

____

____

9. Do government regulations/actions cause any problems in the marketing of your products in Australia? (duty, import regulations, etc.)

☐ Yes ☐ No

Please describe ______________________________

____

____

10. Who do you regard as your major competitors, and what is their market share?

Competitor	% Market

11. What type(s) of internal sales training do you provide?

Type	Duration

12. How long does it take for a salesman to become effective?

13. What are the job classifications for your sales force?

Classification	Average Salary

14. What alternative methods of sales are you considering as a result of salesman costs and low productivity?

CATALOG NO. Y A U S ☐ ☐ ☐

15. Please rate the following factors in terms of their importance to your customer (5 = high, 1 = low) and rank "1"s:

FACTOR	RATE	RANK IS	COMMENT
a) Price/Performance			
b) Hardware Maintenance Capability of Vendor			
c) Software Support Capability			
d) Single vendor for all system purchases (CPU & Peripherals)			
e) Vendor Image/ Viability/Reputation in field			
f) Product Reliability			
g) Vendor Salesman Contacts			
h) Financial Arrangements			
i) Field Upgradability			
j) Other (describe)			

16. Which of the following methods of advertising do you use?

METHOD	% OF ADVERTISING BUDGET
General Magazines	
DP Magazines	
Trade Shows/Conferences	
Direct Mail	
One Day Seminars	
Television	
Other	

17. Would you please provide me with a copy of your product literature and price lists.